ATTACHMENT C.

**APPENDIX 1** 

# CEMENT, PLUGGING, AND WELL HISTORIES OF ALL WELLS IN THE AOR THAT PENETRATE THE INJECTION OR CONFINING HORIZONS

OSCEOLA AND MECOSTA COUNTY, MICHIGAN

THE UNITED STATES POTASH PROJECT APRIL 2015



#### PLUGGING AND WELL HISTORY REVIEW INDEX

APPENDIX TAB LETTER	Review Check	TRS	API Number	Permit Number	Well Name and Number	Total Depth	Formation at Total Depth	<b>Drill Date</b>	Well Status	Well Type	WH_Lat	WH_Long	Operator Name
Z		17N-9W-36	21-133-3611-00-000	36110	THOMPSON 3-36	8366	CINCINNATIAN	Oct-82	INACTIVE	NATURAL GAS WELL	43.8203	-85.3311	Marathon Oil Co.
A		17N-9W-36	21-133-36068-00-00	36068	BABCOCK ET AL 1-36	8200	CABOT HEAD	Sep-83	INACTIVE	NATURAL GAS WELL	43.8265	-85.3272	Marathon Oil Co.
3		17N-9W-36	21-133-36925-00-00	36925	BALDINO 1-36	8200	CABOT HEAD	Sep-83	INACTIVE	NATURAL GAS WELL	43.8203	-85.341	Marathon Oil Company
I		17N-9W-36	21-133-36991-00-00	36991	HODGES ET AL 1-36	8198	CLINTON	Oct-83	INACTIVE	DRY HOLE	43.8152	-85.3294	Marathon Oil Co.
loesn't penetrate		17N-9W-36	21-133-26888-00-00	26888	GREIN, DONALD 1	1649	BROWN LIMESTONE	Aug-67	INACTIVE	DRY HOLE	43.8225	-85.3356	Consumers Energy Company
oesn't penetrate		17N-9W-36	21-133-31089-00-00	31089	THOMPSON, DON; HODGES, FRANK; SMIT	1616	MICHIGAN STRAY	Jul-76	INACTIVE	NATURAL GAS WELL	43.8186	-85.3301	Mutch Harry L
oesn't penetrate		17N-9W-36	21-133-30537-00-00	30537	THOMPSON, DON; HODGES, FRANK; SMIT	1602	MARSHALL	Nov-75	INACTIVE	NATURAL GAS WELL	43.8183	-85.3299	Mutch Harry L
oesn't penetrate		17N-9W-36	21-133-2871-00-000	28710	THOMPSON & RANDOLPH 1	1586	MICHIGAN STRAY	Dec-71	INACTIVE	NATURAL GAS WELL	43.8182	-85.3394	Mutch Harry L
oesn't penetrate		17N-9W-36	21-133-28710-01-00	28710	THOMPSON & RANDOLPH 1	1586	MICHIGAN STRAY	Dec-71	INACTIVE	NATURAL GAS WELL	43.8182	-85.3394	Mutch Harry L
oesn't penetrate		17N-9W-36	21-133-28498-01-00	28498	GREIN, DONALD 1	1539	MICHIGAN STRAY	Aug-71	INACTIVE	NATURAL GAS WELL	43.8252	-85.3392	Hersey Oil and Gas Co.
oesn't penetrate		17N-9W-36	21-133-28498-00-00	28498	GREIN, DONALD 1	1526	MICHIGAN STRAY	Aug-71	INACTIVE	NATURAL GAS WELL	43.8252	-85.3392	Hersey Oil and Gas Co.
oesn't penetrate		17N-9W-36	21-133-28365-00-00	28365	THOMPSON, EDITH 1	1518	MICHIGAN STRAY	Jun-71	INACTIVE	NATURAL GAS WELL	43.8253	-85.3295	Mutch Harry L
oesn't penetrate		17N-9W-35	21-133-36627-00-00	36627	STATE HERSEY 1-35			Apr-83	INACTIVE	LOCATION	43.8167	-85.3509	Rovsek Aldolph E and Muskegon Development Company
Z		17N-9W-35	21-133-36355-00-00	36355	STATE HERSEY 2-35	8310	CINCINNATIAN	Jan-83	INACTIVE	DRY HOLE	43.8203	-85.3604	Marathon Oil Co.
,		17N-9W-35	21-133-38748-00-00	38748	GREIN 1-35	8206	CABOT HEAD	Jun-85	INACTIVE	NATURAL GAS WELL	43.8238	-85.346	Marathon Oil
oesn't penetrate		17N-9W-35	21-133-28888-00-00	28888	RANDOLPH & PAINE & THIEL UNIT 1	1655	MICHIGAN STRAY	Jul-72	INACTIVE	DRY HOLE	43.825	-85.3592	Mutch J O
oesn't penetrate		17N-9W-35	21-133-28786-00-00	28786	GREIN, DONALD & PAINE, HENRY 1	1638	MICHIGAN STRAY	Mar-72	INACTIVE	NATURAL GAS WELL	43.8251	-85.349	Hersey Oil and Gas Co.
		17N-9W-26	21-133-37519-00-00	37519	MILLER 1-25	8425	CABOT HEAD	Aug-84	INACTIVE	NATURAL GAS WELL	43.8334	-85.3463	Marathon Oil Co.
DD		17N-9W-26	21-133-36942-00-00	36942	WOODWARD ET AL 1-26	8135	CABOT HEAD	Oct-83	INACTIVE	DRY HOLE	43.8346	-85.3568	PPG Oil and Gas Company, Inc.
,		17N-9W-26*	21-133-00378-70-00	378	KALIUM 1042*	8116	A-1 SALT	Feb-85	INACTIVE	PART 625, CLASS III	43.8401	-85.3619	Mosaic USA LLC, DBA Mosaic Potash Hersey, LLC
7		17N-9W-26*	21-133-366-00-0000	36600	THOMAS 1-26*	8085	CABOT HEAD	Jan-84	INACTIVE	DRY HOLE	43.8418	-85.3611	PPG Oil and Gas Company, Inc.
1		17N-9W-26*	21-133-00379-70-00	379	KALIUM 1052*	8045	A-1 SALT	Mar-85	INACTIVE	PART 625, CLASS III	43.8398	-85.3619	Mosaic USA LLC, DBA Mosaic Potash Hersey, LLC
		17N-9W-26*	21-133-00394-70-00	394	KALIUM HERSEY 1031*	7973	A-1 SALT	Oct-94	INACTIVE	PART 625, CLASS III	43.8394	-85.3618	Mosaic USA LLC, DBA Mosaic Potash Hersey, LLC
ecords unavailable		17N-9W-26*	21-133-00448-70-00	448	KALIUM HERSEY 2041*	7941	A-1 SALT	Jun-00	INACTIVE	PART 625, CLASS III	43.8332	-85.3591	Mosaic USA LLC, DBA Mosaic Potash Hersey, LLC
ecords unavailable		17N-9W-26*	21-133-00348-70-00	348	KALIUM 1011*	7827	A-1 EVAPORITE	Nov-84	INACTIVE	PART 625, CLASS III	43.8405	-85.3615	Mosaic USA LLC, DBA Mosaic Potash Hersey, LLC
ecords unavailable		17N-9W-26*	21-133-00437-70-00	437	KALIUM HERSEY 2081*	7811	A-1 SALT	7-Jun	INACTIVE	PART 625, CLASS III	43.8327	-85.3592	Mosaic USA LLC, DBA Mosaic Potash Hersey, LLC
		17N-9W-26*	21-133-00381-70-00	381	KALIUM 1031*	4800	A-1 SALT	Feb-92	INACTIVE	PART 625, CLASS III	43.8396	-85.3619	Mosaic USA LLC, DBA Mosaic Potash Hersey, LLC
oesn't penetrate		17N-9W-26	21-133-28635-00-00	28635	PAINE, HENRY 1	1558	MICHIGAN STRAY	Nov-71	INACTIVE	NATURAL GAS WELL	43.8324	-85.3494	Mutch Harry L
oesn't penetrate			21-133-30341-00-00		MILLER, DOUGLAS & THIEL, HAULDAH	1561	BROWN LIMESTONE			DRY HOLE			Mutch Harry L
oesn't penetrate			21-133-30384-00-00	30384	JOHNSON, WALT & MILLER, DOUG & THIE	1529	MICHIGAN STRAY	_	INACTIVE		43.8326	-85.3286	Mutch J O
oesn't penetrate		17N-9W-25	21-133-12066-00-00		JOHNSON-CODY ET AL COMM. 1	1520	MARSHALL		INACTIVE		43.8392	-85.3297	Oryx Energy Co. and Carter Oil Co.
oesn't penetrate		17N-8W-32	21-133-27307-00-00	27307	MANEY, NORMAN 1	1660	MARSHALL	Jul-68	INACTIVE	DRY HOLE	43.8223	-85.3049	Consumer Power and Michigan Consolidated Gas
		17N-8W-31	21-133-34558-00-00	34558	FREUDENBURG 1-31	10858	PRAIRIE DU CHIEN	Jul-81	INACTIVE	DRY HOLE	43.8265	-85.3083	JEM Petroleum Corp.
		17N-8W-31	21-133-358-00-0000	35800	GRAY 1-31	9769	PRAIRIE DU CHIEN	Aug-82	INACTIVE	NATURAL GAS WELL	43.8275	-85.3224	Marathon Oil Co.
J		17N-8W-31	21-133-36336-00-00	36336	PARK 1-31	8216	CLINTON	Feb-84	INACTIVE	DRY HOLE	43.8203	-85.322	Marathon Oil Co.
		17N-8W-31	21-133-34558-01-00	34852	FREUDENBURG 1-31A	8183	DUNDEE	Aug-81	INACTIVE	DRY HOLE	43.8265	-85.3083	JEM Petroleum Corp.
oesn't penetrate		17N-8W-31	21-133-31786-00-00	31786	KNAPP, GERALD & PARKS, ROBERT 1-31	1590	MICHIGAN STRAY	Sep-77	INACTIVE	NATURAL GAS WELL	43.818	-85.32	Hersey Oil and Gas Co.
CC			21-133-35977-00-00		WARK 1-30	8371	CINCINNATIAN			DRY HOLE	43.8421		Willmet Inc.
)		17N-8W-30	21-133-33466-00-00	33466	MANEY, NORMAN 1-30	5080	AMHERSTBURG	Feb-80	INACTIVE	DRY HOLE	43.8347	-85.3196	Dart Oil and Gas Co.

APPENDIX TAB LETTER	Review Check	TRS	API Number	Permit Number	Well Name and Number	<b>Total Depth</b>	Formation at Total Depth	<b>Drill Date</b>	Well Status	Well Type	WH_Lat	WH_Long	Operator Name
О		17N-8W-30	21-133-27159-00-00	27159	MADDERN, H 1	4030	DUNDEE	Feb-68	INACTIVE	DRY HOLE	43.8333	-85.3126	Madlou Inc.
AA		17N-8W-19	21-133-38463-00-00	38463	VUKIN UNIT 1-19	8385	CINCINNATIAN	Feb-85	INACTIVE	DRY HOLE	43.844	-85.3148	PPG Oil and Gas Company, Inc. and Amoco Production Co.
AA		17N-8W-19	21-133-38463-70-00	5006	VUKIN UNIT 1-19	8385		Dec-84	INACTIVE	DRY HOLE	43.844	-85.3148	PPG Oil and Gas Company, Inc. and Amoco Production Co.
records unavailable		16N-9W-2*	21-107-37188-00-00	37188	JENSEN 1-2*	8085	CABOT HEAD	Nov-83	INACTIVE	DRY HOLE	43.8073	-85.3455	Marathon Oil Co.
16N-9W-12		16N-9W-12	21-107-00340-70-00	340	PILARSKI 1-12	8318	CINCINNATIAN	Aug-84	INACTIVE	DRY HOLE	43.7974	-85.3266	PPG Industries, Inc.
Т		16N-9W-12*	21-107-36283-00-00	36283	PARK 1-12*	8215	CINCINNATIAN	Jan-83	INACTIVE	DRY HOLE	43.798	-85.3409	Willmet Inc.
вв		16N-9W-11	21-107-00339-70-00	339	WARD 1-11*	8121	CINCINNATIAN	Aug-84	INACTIVE	DRY HOLE	43.7901	-85.3466	PPG Industries, Inc.
no data		16N-9W-1	21-107-00377-70-00	377	JOHNSON 2-1	8085	A-1 SALT	Apr-84	INACTIVE	DRY HOLE	43.8098	-85.3291	PPG Industries, Inc.
no data		16N-9W-1	21-107-00337-70-00	337	JOHNSON 3-1	8073	A-1 EVAPORITE	May-84	INACTIVE	DRY HOLE	43.8098	-85.329	PPG Industries, Inc.
W		16N-8W-7	21-107-36187-00-00	36187	STEIN 1-7	8380	CINCINNATIAN	Nov-82	INACTIVE	DRY HOLE	43.7911	-85.312	Willmet Inc.
records unavailable		16N-8W-6	21-107-36067-00-00	36067	JOHNSON ET AL 1-6	8386	CINCINNATIAN	Oct-82	INACTIVE	DRY HOLE	43.8057	-85.322	Marathon Oil Co.
doesn't penetrate		16N-8W-6	21-107-30728-00-00	30728	MCLACHLAN, GEORGE 1-6	1670	MICHIGAN STRAY	May-76	INACTIVE	DRY HOLE	43.8033	-85.3101	Mutch Harry L
doesn't penetrate		16N-8W-6	21-107-30654-00-00	30654	KNAPP, GERALD & JOHNSON, DON 1-6	1610	MICHIGAN STRAY	Dec-75	INACTIVE	NATURAL GAS WELL	43.8109	-85.3198	Mutch Harry L
V		16N-8W-18*	21-107-3689-00-000	36890	STEIN 1-18*	8264	CINCINNATIAN	Aug-83	INACTIVE	DRY HOLE	43.7765	-85.3074	PPG Oil and Gas Company, Inc.

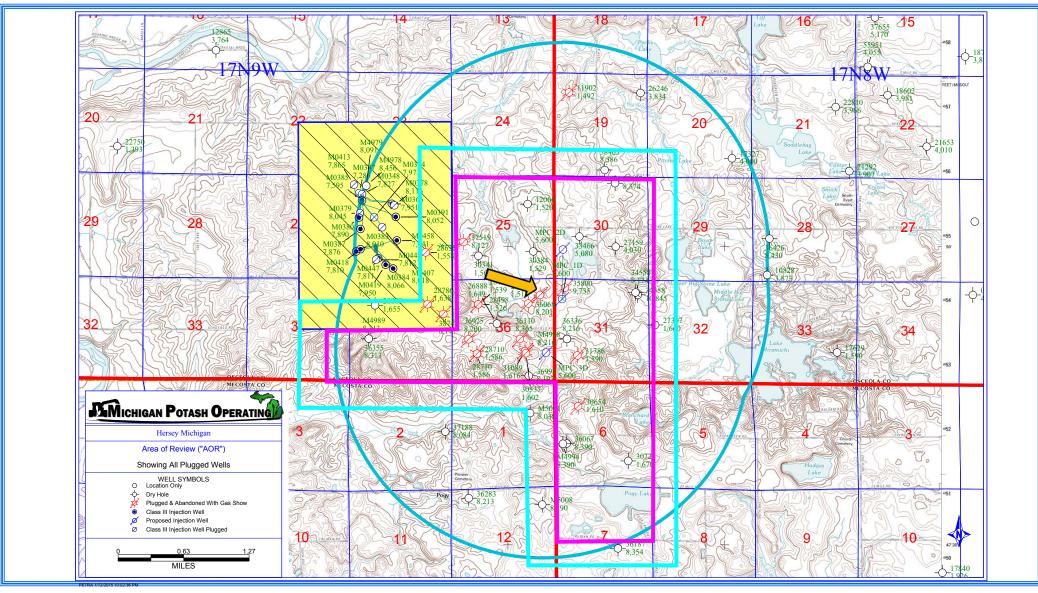


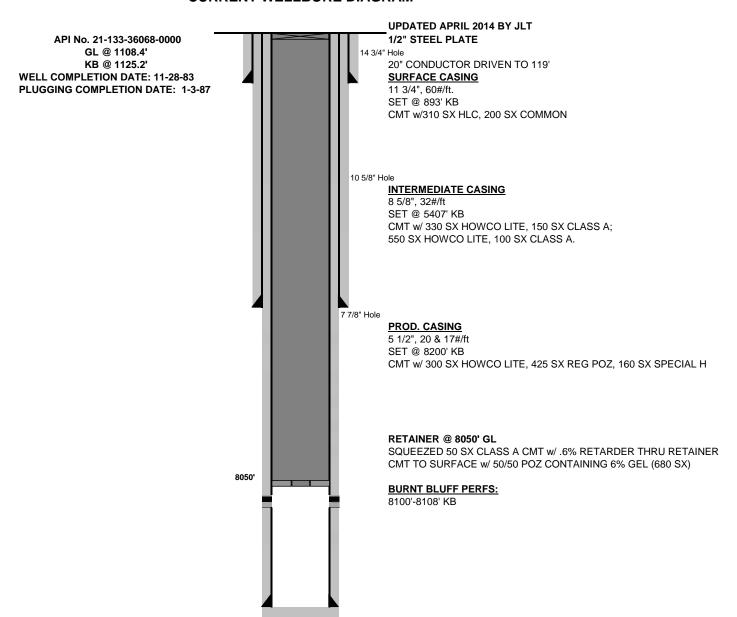
Figure B4. Map showing all plugged wells, shallow (that do not penetrate any confining horizon) or deep (that penetrate confining horzion) within the area of review. Total Depths are listed. There are several shallow Michigan Stray wells that do not penetrate the injection or confining horizon.

#### **BABCOCK 1-36**

#### SW NE NE Sec 36 T17N R9W OSCEOLA COUNTY, MI

#### **CURRENT WELLBORE DIAGRAM**

TD @ 8201' KB



#### **BABCOCK 1-36 WELL HISTORY**

DATE	DESCRIPTION
8/29/1983	SPUD.
9/18/1983	DRILLING COMPLETED. FORMATION AT TD CABOT HEAD. PRODUCING FORMATION(S) BURNT BLUFF
10/27/1983	PERFED (OPEN) 8100'-8108'
11/28/1983	WELL COMPLETED.
	20" CONDUCTOR SET AT 119'
	11 3/4" SET AT 893'; 310 SX HLC, 200 SX COMMON
	8 5/8" SET AT 5407'; 330 SX HOWCO LITE, 150 SX CLASS A; 550 SX HOWCO LITE, 100 SX CLASS A
	5 1/2" SET AT 8200'; 300 SX HOWCO LITE; 425 SX REG POZ, 160 SX SPECIAL H; PERFS FROM 8100-8108, 500 GALS 28% HCI ACID, Ret. At 8050', CMT TO SURF, P & A
12/29/1986	PLUGGING START DATE SET RETAINER AT 8050'
	SQUEEZED 50 SX CLASS A CEMENT CONTAINING .6% RETARDER THROUGH RETAINER CEMENTED TO SURFACE WITH 50/50 POZ CONTAINING 6% GEL (680 SX) CUT OFF CASING AT BASE OF CELLAR 3' BELOW GROUND LEVEL AND CAPPED WITH 1/2"
	STEEL PLATE
1/3/1987	PLUGGING COMPLETION DATE

# STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES GEOLOGICAL SURVEY DIVISION BOX 30028 LANSING, MICHIGAN 48909

USE APPROPRIATE BLOCKS. FOR ITEMS NOT LISTED SUBMIT ATTACHMENTS. REQUIRED BY AUTHORITY OF:

X ACT 61, P.A. 1939, AS AMENDED X ACT 315, P.A. 1969, AS WENDED

NON-SUBMISSION AND/OR FALSIFICATION OF THIS INFORMATION MAY RESULT.

RECORD OF WELL: X PLUGGING REWORK (MAIL THREE COPIES TO THE DISTRICT OFFICE WITHIN 30 PAYS AFTER COMPLETION OF PLUGGING OR REWORK)

NAME AND ADDRESS OF WELL OWNER

PPG 0il & Gas Co., Inc. One Jackson Square, Suite 600 Jackson, MI 49201

PERMIT NO 36068	TYPE OF WELL 7
Min. Well 1212-831-367	Gas/P&A
FIELD/FACILITY NAME	X-1
Hersey Evart	<u>্</u>
WELL NAME & NUMBER	
Babcock 1-36	
WELL LOCATION	
SW 4 of NE 4 of NE 4	Section 36 T 17N R 9W
30WNSHIP	COUNTY
Hersey.	Osceola
TOTAL DEPTH	FORMATION
8201' (f.og)	Burnt Bluff
PLUGGING/REWORK STARTING DATE	PLUGGING/REWORK COMPLETION DATE
12/29/86	01/03/87
COTAL DEPTH AFTER REWORK ()	MECHANICAL LOGS RUN
Abandoned Well	N/A
WELL COMPLETED FOR	FORMATION AND ZONE
P & A	

CASING SIZE	WHERE SET	AMOUNT RECOVERED	SHOT OR RIPPED	TYPE	OF BRIDGES OR PLUGS	DEPTH PLACED	SACKS OF CEMENT	& ADDITIVES
20" Cond	uctor _119'	None	N/A					
11-3/4"	8931	None	N/A					
8-5/8"	5407'	None	N/A					_
5-1/2"	8200'	None	N/A	5-1/2"	Retainer		50 sx Clas	
							retainer,	filled
	<b></b>	·					bolo w/680	~cv_b0/

note w/680 sx 50/50 DID A SERVICE COMPANY PUMP MUD. SPOT CEMENT. POZ W/6% gel. WERE TOOLS, TUBING, CASING, ETC LOST OR LEFT IN THE HOLE BEFORE OR AFTER PLUGGING? IF YES, GIVE DETAILS Halliburton Services P.O. Box 519 See Above Casing Record 49646 Kalkaska, MI WELL PLUGGING/REWORK CONTRACTOR AND ADDRESS PERMITEE'S PLUGGING WITNESS Well Tech. Inc. Timothy L. Baker 2255 Parkway NAMEIS) OF DNR REPRESENTATIVE WHO X ISSUED PERMIT Jack Snider Mt. Pleasant, MI 48858 WITNESSED PLUGGING

			WEL	L CASING I	RECORD -	BEFORE REWORK	
Cas	sing	Cei	ment	Perfo	rations	Acid or Fracture	Perforations
Size	Depth	Sacks	Туре	From	То	Treatment Record	if plugged, how?
20" Con	119	Driven					
1-3/4"	8931	310 sx HL	C, 200 s	Common			
8-5/8"	54071	330 sx Ho	wco Lite		lass A		
		550 sx Hd	wco lite	100 sx 0	lass A		
5-1/2"	82001	300 sx Ho	wco lite	8100 -	8108	500 gals 28% HCl acid	Ret. @ 8050' cm
		425 sx Re	g Poz, 160	sx Speci	al H		to surf. P & A.
Cas	sing	Cer	ment	Perforations		Acid or Fracture	Perforations
Size	Depth	Sacks	Туре	From	То	Treatment Record	If plugged, how?

DESCRIBE IN DETAIL HOW WELL WAS PLUGGED OR REWORKED.

1. Set retainer @ 8050'.

2. Squeezed 50 sx Class A cement containing .6% retarder through retainer.

3. Cemented to surface with 50/50 POZ containing 6% gel (680 sx).

4. Cut off casing at base of cellar 8" below ground level and capped with 1/2" steel plate.

Object (Polis) Water Cas Person Date of MC Cas Beginning Ending Specific (Polis) (MCF) Tusing Casing Date of MC Cas Beginning Ending Specific (Polis) (MCF) Tusing Casing Date of MC Cas Beginning Ending Specific (Polis) (MCF) Tusing Casing Date of MC Cas Beginning Ending Specific (Polis) (MCF) Tusing Casing Date of MCF Cas Beginning Ending Specific (Polis) (MCF) Tusing Date of MCF Cas Beginning Ending Specific (Polis) (MCF) Tusing Date of MCF Cas Beginning Ending Specific (Polis) (MCF) Tusing Date of MCF Cas Beginning Ending Specific (Polis) (MCF) Tusing Date of MCF Cas Beginning Ending Specific (Polis) (MCF) Tusing Date of MCF Cas Beginning Ending Specific (Polis) (MCF) Tusing Date of MCF Cas Beginning Ending Specific (Polis) (MCF) Tusing Date of MCF Cas Beginning Specific (Polis) (MCF) Tusing Date of MCF Cas Beginning Specific (Polis) (MCF) Tusing Date of MCF Cas Beginning Specific (Polis) (MCF) Tusing Date of MCF Cas Beginning Specific (Polis) (MCF) Tusing Date of MCF Cas Beginning Specific (Polis) (MCF) Tusing Date of MCF Cas Beginning Specific (Polis) (MCF) Tusing Date of MCF Cas Beginning Specific (Polis) (MCF) Tusing Date of MCF Cas Beginning Specific (Polis) (MCF) Tusing Date of MCF Cas Beginning Specific (MCF) Tusing Date of MCF Cas Beginning Specifi		DAILY	PRODUC	TION TE	ST RECORD		DAILTING	ECTION TES	T RECORD:	BRINE	DISPOSAL V
AL TESTING AFTER REWORK (Disposal Injection Rate and Pressure)  (Act 315, P.A. 1969, as amended (Binne: Original Fluid Level and Producing Rate)  (Act 315, P.A. 1969, as amended (Binne: Original Fluid Level and Producing Rate)  (Act 315, P.A. 1969, as amended (Binne: Original Fluid Level and Producing Rate)  (Act 315, P.A. 1969, as amended (Binne: Original Fluid Level and Producing Rate)  (Act 315, P.A. 1969, as amended (Binne: Original Fluid Level and Producing Rate)  (Act 315, P.A. 1969, as amended (Binne: Original Fluid Level and Producing Rate)  (Act 315, P.A. 1969, as amended (Binne: Original Fluid Level and Producing Rate)  (Act 315, P.A. 1969, as amended (Binne: Original Fluid Level and Producing Rate)  (Act 315, P.A. 1969, as amended (Binne: Original Fluid Level and Producing Rate)  (Act 315, P.A. 1969, as amended (Binne: Original Fluid Level and Producing Rate)  (Act 315, P.A. 1969, as amended (Binne: Original Fluid Level and Producing Rate)  (Act 315, P.A. 1969, as amended (Binne: Original Fluid Level and Producing Rate)  (Act 315, P.A. 1969, as amended (Binne: Original Fluid Level and Producing Rate)  (Act 315, P.A. 1969, as amended (Binne: Original Fluid Level and Producing Rate)  (Act 315, P.A. 1969, as amended (Binne: Original Fluid Level and Producing Rate)  (Act 315, P.A. 1969, as amended (Binne: Original Fluid Level and Producing Rate)  (Act 315, P.A. 1969, as amended (Binne: Original Fluid Level and Producing Rate)  (Act 315, P.A. 1969, as amended (Binne: Original Fluid Level and Producing Rate)  (Act 315, P.A. 1969, as amended (Binne: Original Fluid Level and Producing Rate)  (Act 315, P.A. 1969, as amended (Binne: Original Fluid Level and Producing Rate)  (Act 315, P.A. 1969, as amended (Binne: Original Fluid Level and Producing Rate)  (Act 315, P.A. 1969, as amended (Binne: Original Fluid Level and Producing Rate)  (Act 315, P.A. 1969, as amended (Binne: Original Fluid Level and Producing Rate)  (Act 315, P.A. 1969, as amended (Binne: Original Fluid Level and Producing Rate)  (Act 315, P.A.		1 1					<b>1</b>				Specific G
AL TESTING AFTER REWORK (Disposal: Injection Rate and Pressure)  (Brine: Original Fluid Level and Producing Rate)  CERTIFICATION  tate that I am authorized by said Owner or Operator to make this report; and that this report was prepared under my supervicion, and that the facts stated herein are true, correct and complete to the best of my knowledge."  AND TITLE Produce or Production Engineer  I BONDS CANDOTTE Production Engineer  BONDS CANDOTTE PROMOTOR BRELEASED UNTIL PLUGGING IS COMPLETED, CELLAR RAT AND MOUSE HOLES, AND PITS FILLED. SITE LEVELED AND CLEANED PRIS FILLED SITE LEVELED AND CLEANED PRIS FILLED. SITE LEVEL PRIS FILLED. SITE LE		(EIDIS.)	(BDIS.)	(MCF)	Tubing	Casing	Date	or MCF Gas	Beginning	Enaing	OI WAI
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PERMIT NO. TYPE OF WELL 36068 Gas NAME AND ADDRESS OF WELL OWNER [] APPROVAL MAILED REGULARD BY AUTHORITY OR: PPG Oil & Gas 👿 FT ET, P.A. 1989, AS AMENDED - 🖸 ACT 315, P.A. 1989, AS AMENDED Suite 1052 1 Jackson Sq. APPLICATION TO (Submit 4 copies): Jackson; MI 49204 CHANGE WELL STATUS PLUG AND ABANDON' NOTIFICE SECON AND OR FALSTRICATION OF THIS INFORMATION MAY RESULT IN FINES FALS OR IMPRESORMENT. FIELD:FACILITY NAME CHANGE OF MELL STATUS REQUESTED FOR: Hersey Clinton Pool PLUG BACK E EXTEND PLUGGING (T.A.) ☐ PERFORATE WELL NAME WELL NO. CONVERT TO INJECTION OR DISPOSAL WELL | OTHER Babcock 1-36 WELL LOCATION ADDIZE (315 CNLY) FRACTURE (315 ONLY) SW . 14 of NE 4 of NE 4 Section 36 T 17N R9W LIST PRODUCTION PRUSOTION AND TYPE OF FLUID TOWNSHIP COUNTY Amount der day & nection pressure) Hersey Osceola 30 Mcf/month DATE LAST PRODUCED/UTILIZED DATE CRILLING COMPLETED 9/18/83 6/B4 work to be done by: 😨 approval mailed STARTING DATE will notify 12/29/86 CASING AND CEMENTING RECORD CENS CALL MITTE DEPTHS SET CEMENT CUANTITY, TYPE, ADDITIVES CMT. TOP PERFORATIONS 20" 119 DP 113/4" 510 893 circl 8100-8108 85/8" 5407 1130 8200 885 3300 FORMATION REDORD Gorration and depth, cit. gas and water shows, etc.): KB 1125.2 BOD 598 Clinton 8024 STRAY 1550 SJ Burnt Bluff 8096 TL 3284 Cabothead 8158 DD 3802 TD 8201 RCD 3940 BI 5382 BS 6584 NIA 7904 THAT PEOPLE PROCEDURES Set 5½ cmt. ret. 8050 . Squeeze 50 sx thru perfs. Close retur. Spot cmt. w/50-50 poz from top retnr. to surf. in stages as tubg. is pulled. All csg. to be abandoned w/well. Cut 3! below grade and cap w/cmt. & welded GEORGICAL CALERIAN UNIT 1/2" steel plate. DE ACCITONAL FEDUREVENTS "-NE DOWNER AUTORIES Febresemanies DATE 25 42.51 BY DY CFFICE APPROVAL DATE TERMINATION DATE Cadillac TE THREE DOMES OF WELL PROBLEMS OR REMORK (PRIVIDER) ARE TO BE FILED WITHIN 30 DAYS OF COMPLETION.

CADILLAC HAS COPY STATE OF MICHIGAN
DEPARTMENT OF NATURAL RESOURCES
GEOLOGICAL SURVEY DIVISION
BOX 30028
LANSING, MICHIGAN 48909 PERMIT NO 36068 TYPE OF WELL Min. Well 1212-831-367 Gas/P&A FIELD/FACILITY NAME Hersey Evart USE APPROPRIATE BLOCKS. FOR ITEMS NOT LISTED SUBMIT ATTACHMENTS. WELL NAME & NUMBER REQUIRED BY AUTHORITY OF: Babcock 1-36 X ACT 61, P.A. 1939, AS AMENDED X ACT 315, P.A. 1969, AS MANENDED WELL LOCATION NON-SUBMISSION AND/OR FALSIFICATION OF THIS INFORMATION MAY RESULT! NE 14 of NE 14 Section 36 T 17N R 9W 1/4 of IN FINES AND/OR IMPRISONMENT. JÓWNSHIP COUNTY Hersey Osceola **B**AEWORK RECORD OF WELL: T PLUGGING (MAIL THREE COPIES TO THE DISTRICT OFFICE WITHIN 30 PAYS AFTER COMPLETION OF PLUGGING OR REWORK) TOTAL DEPTH FORMATION 8201' (Eog) Burnt Bluff NAME AND ADDRESS OF WELL OWNER PLUGGING/REWORK STARTING DATE PLUGGING/REWORK COMPLETION DATE 01/03/87 12/29/86 PPG Oil & Gas Co., Inc. OTAL DEPTH AFTER REWORK () MECHANICAL LOGS RUN One Jackson Square, Suite 600 Abandoned Well N/A Jackson, MI 49201 WELL COMPLETED FOR FORMATION AND ZONE P & A

CASING SIZE	WHERE SET	AMOUNT RECOVERED	SHOT OR RIPPED	TYPE OF BRIDGES OR PLUGS	DEPTH PLACED	SACKS OF CEMENT & ADDITIVES
20" Cond	uctor 119'	None	N/A			
11-3/4"	. 8931	None	N/A			
8-5/8"	54071	None	N/A			
5-1/2"	8200'	None	N/A	5-1/2" Retainer	8050	50 sx Class A thr
						retainer, filled
					1	hole w/680 sx 50/
	TUBING, CASING, ETC.	LOST OR LEFT IN THE	HOLE BEFORE OF	DID A SERVICE COMPANY PUMP N		POZ w/6% gel.

WERE TOOLS, TUBING, CASING, ETC. LOST OR LEFT IN THE HOLE BEFORE OR AFTER PLUGGING? IF YES, GIVE DETAILS.

See Above Casing Record

WELL PLUGGING/REWORK CONTRACTOR AND ADDRESS

Well Tech. Inc.

2255 Parkway

Mt. Pleasant, MI 48858

DID A SERVICE COMPANY PUMP MUD. SPOT CEMENT. POZ W/6% gel.

IF YES, GIVE NAME AND ADDRESS.

Halliburton Services
P.O. 80x 519
Kalkaska, MI 49646

PERMITE'S PLUGGING WITNESS

Timothy L. Baker

NAME(SI OF DNR REPRESENTATIVE WHO X ISSUED PERMIT

Jack Snider

WITNESSED PLUGGING

			WEL	L CASING I	RECORD —	BEFORE REWORK	
Cas	รเกฎ	Ce	ment	Perfo	rations	Acid or Fracture	Perforations
Size	Depth	Sacks	Туре	From	То	Treatment Record	If plugged, how?
20" Con	119'	Driven					
11-3/4"	8931	310 sx HL	C, 200 s;	Common			
8-5/8"	5407'	330 sx Ho	wco Lite		lass A		
		550 sx Ho	wco lite	100 sx (	lass A		
5-1/2"	82001	300 sx Ho	wco lite	8100	8108	500 gals 28% HCl acid	Ret. @ 8050', cmt
			g Poz, 160	) sx Speci	al H		to surf. P & A.
Cas	ing	Cer	ment	Perforations		Acid or Fracture	Perforations
Size	Depth	Sacks	Туре	From	То	Treatment Record	If plugged, how?
1						1	
1							

DESCRIBE IN DETAIL HOW WELL WAS PLUGGED OR REWORKED

- 1. Set retainer @ 8050'.
- 2. Squeezed 50 sx Class A cement containing .6% retarder through retainer.

3. Cemented to surface with 50/50 POZ containing 6% gel (680 sx).

4. Cut off casing at base of cellar 8" below ground level and capped with 1/2" steel plate.

				ST RECORD		DAILY INJ		T RECORD:	☐ INJECTION ☐ BRINE DIS	POSAL WE
Date	Oil (Bbls.)	Water (Bbis.)	Gas (MCF)	Pres Tubing	Casing	Date	Bbis. Water or MCF Gas	Beginning	ressure	Specific Grav
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IAL TES	TING AFT	ER REW	-	Disposal: Injec Brine: Original		,	g Rate)	(Act 315, I	P.A. 1969, as a	amended)
state that	I am auti	horized b	y said C	wner or Opera	ator to make	ICATION this report; an	d that this r	eport was pr	epared under m	y supervision
			acts stat	ed herein are	true, correc		te to the b	est of my k	nowledge."	
	(Typed or P					SIGNATURE	/ :		DATE	
BONDS FILE	CANNOT BE	rt, Sr.	D UNTIL P	iction Engi	neer PLETED, CELLAR		SE HOLES. AN	D PITS FILLED.	SITE LEVELED AND	CLEANED AN
FOR	DNR USI	E ONLY	- FINA	AL INSPECTIO	NS BY DEP	ARTMENT OF	NATURAL	RESOURCES	S REPRESENTA	TIVES
							DIVISION			TE
<del>SIVITIS</del> GSD 1	gnatur	, 50 to	od hu	form R723( ive 1-14-93						
	ruc, 3		Tailert	10/m R723(	3.				-	
			- 50(	1-14-93	3.					

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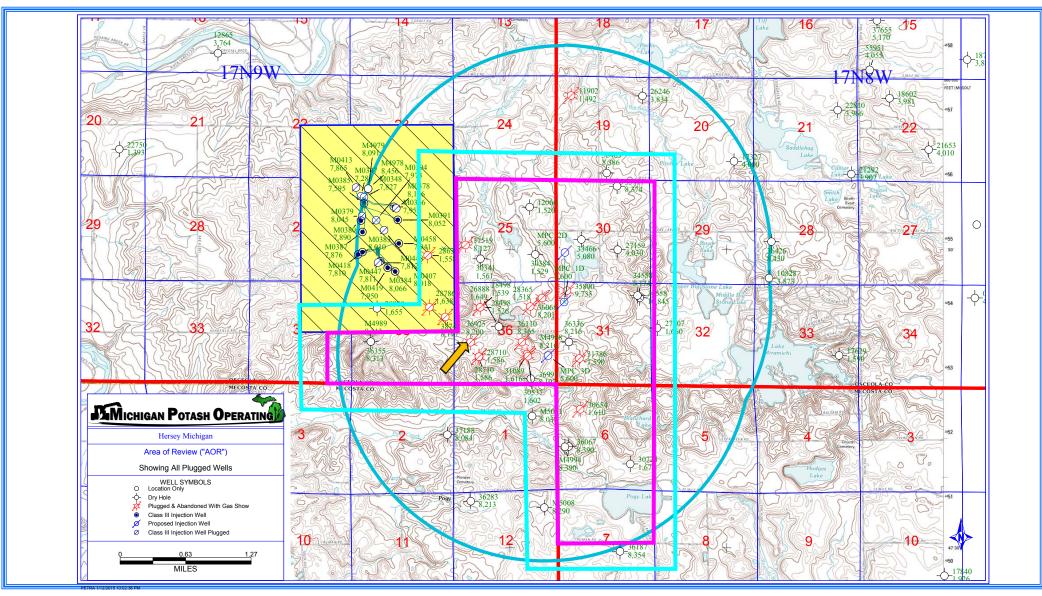


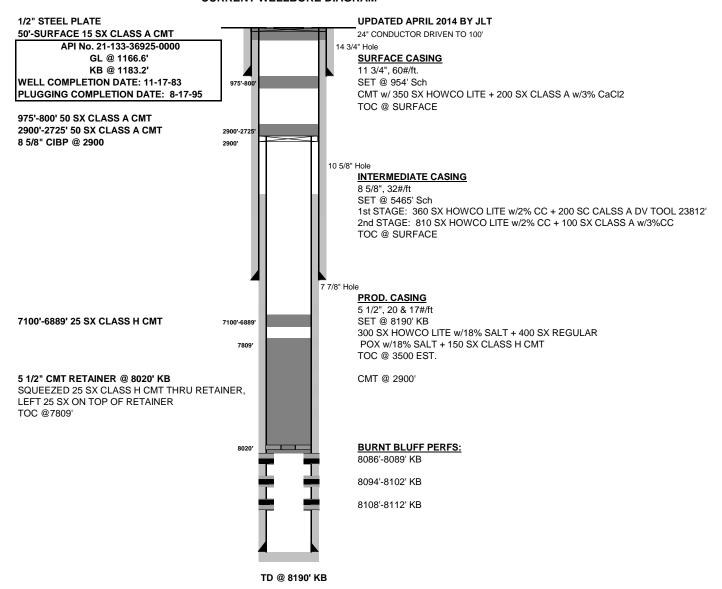
Figure B4. Map showing all plugged wells, shallow (that do not penetrate any confining horizon) or deep (that penetrate confining horzion) within the area of review. Total Depths are listed. There are several shallow Michigan Stray wells that do not penetrate the injection or confining horizon.



#### BALDINO 1-36

NE NW SW Sec 36 T17N R9W OSCEOLA COUNTY, MI

#### **CURRENT WELLBORE DIAGRAM**



#### **BALDINO 1-36 WELL HISTORY**

<u>DATE</u> <u>DESCRIPTION</u>

8/17/1983 SPUD.

9/10/1983 DRILLING COMPLETED. FORMATION AT TD CABOT HEAD. PRODUCING FORMATION(S) BURNT BLUFF

11/16/1983 PERFED (OPEN) 8086'-8089, 8094'-8102', 8108'-8112'

11/17/1983 WELL COMPLETED.

24" CONDUCTOR SET AT 100'

11 3/4" SET AT 953'; 350 SX HOWCO LITE + 200 SX CLASS A w/3% CaCl2

8 5/8" SET AT 5465'; FIRST STAGE: 360 SX HOWCO LITE w/2% CC + 200 SX CLASS A DV TOOL @ 3812'

SECOND STAGE: 810 SX HOWCO LITE w/2% CC + 100 SX CLASS A w/3%CC

5 1/2" SET AT 8190"; 300 SX HOWCO LITE W/18% SALT + 400 SX REGULAR POX w/18% SALT + 150 SX CLASS

**HCMT** 

8/15/1995 PLUGGING START DATE

8/15/1995 5 1/2" CMT RETAINER SET AT 8020'.

8/16/1995 STING INTO RETAINER AT 8020' FOR INJECTION TEST, HALLIBURTON MIXED 50 SX CLASS H CMT, STUNG

INTO RETAINER AND DISPLACE 25 SX THRU RETAINER, PULL OUT AND LEAVE 25 SX ON TOP OF RETAINER. TOOH WITH TUBING TO 7100' AND SPONT 25 SX CLASS H CMT PLUG. TOOH WITH TUBING. ND BOP'S AND HEAD. RU ENTERRA OILFIELD TOOLS AND CUT 5 1/2" CASING BELOW SLIPS. PULL STUB AND SLIPS FROM CASING HEAD. NU HEAD AND BOP'S. RU HALLIBURTON WIRELINE, SPEAR CASING AND FREEPOINT 5 1/2" CASING @2900'. TOOH WITH FREEPOINT TOOL. INSTALL CUTTER. TIH AND CUT CASING

@ 2900'. LAY DOWN STUB AND SPEAR. SD FOR NIGHT.

8/17/1995 TOOH LAYING DOWN 5 1/2" CASING. TIH WITH 2100' OF TUBING AND TOH LAYING DOWN. NU BOPS/S AND

TUBING HEAD, INSTALL 8 5/8" CAST IRON BRIDGE PLUG ON TUBING AND TIH TO 2900', SET BRIDGE PLUG. RU HALLITBURTON. STING OUT OF BP AND SPOT A 50 SX CLASS A CEMENT PLULG ON TOP OF RETAINER. LAY DONW 250' OF TUBING AND PUMP 120 BBLS OF MUD FROM GREIN LOCATION DOWN HOLE. TOOH LAYING DOWN TUBING TO 975' WHERE A 50 SX CLASS A CEMENT PLUG WAS SPOTTED, THEN TOOH LAYING DOWN TUBING. REMOBE BOP'S AND TUBING HEAD, PUMP 15 SX CEMENT AT SURFACE AND FILL TOP 50'. RD HALLIBURTON. CUT OFF 11 3/4" HEAD IN BASE OF CELLAR AND CAP WITH A 1/2" STEEL PLATE WELL NUMBER 1-36 AND DATE 8-16-95 WERE MARKED ON TOP. RD COMPLETION UNIT. SD FOR NIGHT.

8/17/1995 PLUGGING COMPLETED.

#### STATE OF MICHIGAN

	PERMIT NUMBER
Ì	36925
٠.]	DEFORMUNG OF SAME ANALOGO

		DEDARTI	MENT OF NATURAL RESO	HOORE	BEC n v is	00   FE	MINITE NOW					
	LO		ISPOSAL OR STORA	UNCES	_		3692	5				
			ATE Within 30 Days after			DE	EPENING P	ERMIT NUMBER				
N	AME(S) &	ADDRESS OF OWNER	S) SHOWN ON PERMIT		NAME & ADDRESS OF DRILLING CONTRACTOR(S)							
}	PPG O	11 & Gas Co., I	nc.		T. D. Provins							
	2258	Enterprise Driv	e		2113	Enterpr	ise Driv	<i>r</i> e				
1	Mt. P	leasant, MI 488	58	į	Mt. P	leasant	, MI 488	358				
LE	ASE NAM	E(S) & WELL NUMBER	SHOWN ON PERMIT				to a Agricum	DIRECTIONALL	YOR	ILLED		
	Baldi	no #1-36						YES \ NO	$\mathbf{x}$ k			
SU	PREACE L	OCATION	SECTION	TOWNSHI	P	RANGE		TOWNSHIP NAM	16			
	NE NW	SW	36	171	× (	9	W	Herse	eу			
FC		(North/South)			ast/West)			COUNTY NAME				
_		t. from North			Vest Line	of quarter	section	Osce				
<u>કા</u>	BSURFA	E LOCATION	SECTION	TOWNSHI	P	RANGE	TOWNSHIP NAME					
					l							
FC		(North/South)			ast/West)			COUNTY NAME				
-			ine and			of quarter	section					
1		G BEGUN	TOTAL DEPTH OF WE		TYPE WELL	1.1						
D.		7-83	Driller 8200 Log_	81.40	1			ELEVATIONS				
A		G COMPLETED	FORMATION AT T.D.		FT. DRLD			-	R.F.	101	_	
Т		.0-83	Cabot Head		From 0			1183.2		181.	9	
ε		MPLETED	PRODUCING FORMAT	ION(S)	FT. DRLD			A.T.	Grd.	177		
	11-	-17-83	Burnt Bluff		From	To				166. ——	b	
		CASING, CASING LINE	RS AND CEMENTING				PERFOR	ATIONS				
	SIZE	WHERE SET	CEMENT	Ft. Pulled	DATE	NUMBER	WITTO	AL DEDEODATE		OPE	N.	
24	t	100	D.P.		DATE	HOLES	INTERV	AL PERFORATE		YES	NO	
13	3/4"	954 Sch	550 sx		11-16-83			36-8089		X		
{	3 5/8"	5476 Sch	1470 sx			lx/ft		94-8102		X		
	1/2"	8190	950_sx			lx/ft	810	08-8112		X		
				)							- }	

#### **GROSS PAY INTERVALS**

#### ALL OTHER OIL AND GAS SHOWS OBSERVED OR LOGGED

FORMATION OILORGAS FROM TO			OIL	<del>_</del>	WHERE OBSERVED (X)							
Burnt Bluff	Gas	8090	8126	FORMATION	OR GAS	DEPTH	Sam- ples	Odor	Pits	Mud Line	Gas Log.	Fill Up
				Traverse	Gas	3620	1				XX	
				Reed City Dol	Gas	4065	<del>                                     </del>				XX	
				Richfield	Gas	4810					XX	

#### STIMULATION BY ACID OR FRACTURING

#### WATER FILL UP (F.U.) OR LOST CIRCULATION (L.C.) (X)

DATE	Interval Treated	Materials and amount used	FORMATION	F.U.	L.C.	DEPTH	AMOUNT
11-17-83	8086-8112	2000 gal. 20%					
			None				

#### MECHANICAL LOGS, LIST EACH TYPE RUN

#### DEPTH CORRECTION DEVIATION SURVEY PLUGGED BACK

Brand	(x)	LOG TYPES	LOGGED INTERVALS	DEPTH	CORRECT'N	RUN AT	DEGREES	YES	NO	DEPTH
Schlumberger	X	LDT CNL GR	200-8190			2750	1/2°			
Birdwell		Sonic	200-8190			4300	1°			
9		DLL-MLL	. 2500-8190			6600	10			
E						7900	1/2°			

#### PRODUCTION TEST DATA

OIL - Bbis/day	GRAVITY - OAPI	COND. Bbls/day	GAS - MCF/day	WATER - Bbls/day	H <sub>2</sub> S Grains/100 cu. ft.	B.H.P. AND DEPTH
			1,450			

#### I AM RESPONSIBLE FOR THIS REPORT. THE INFORMATION IS COMPLETE AND CORRECT.

DATE 11-9-83	NAME AND TITLE (PRINT) William E. Booker, Geologist	SIGNATURE E. Backer

••	STATE OF DEPARTMENT OF NA	ATURAL RESOURCES	3		·					
	GEOLOGICAL SI BOX	30028		PERMIT NO.		YPE OF WELL				
	LANSING, MIC	HIGAN 48909		36925  NAME AND ADDRESS OF WELL OF	WAISO C A	GBS	En.			
X ACT 61, F	AUTHORITY OF: P.A. 1939, AS AMENDED TON TO (Submit 4)		969. AS AMENDED	Marathon Oil Company 1231 E. Mosherville Road Jonesville, MI 49250						
CHANGE	WELL STATUS	(V) BLUC AND AL	PANDON							
	N AND/OR FALSIFICATION OF	THIS INFORMATION M.		FIELD/FACILITY NAME						
CHANGE OF W	ELL STATUS REQUESTED FO	R:		Hersey Unit						
PLUG BA	ACK _ EXTEND PLU	GGING (T.A.)	☐ PERFORATE	WELL NAME		w	ELL NO.			
CONVER	T TO INJECTION OR	DISPOSAL WELL	☐ OTHER	Baldipo.			#1-36			
ACIDIZE	(315 ONLY)	FRACTURE (31	5 ONLY)	WELL LOCATION NE , 1/4 of NW 1/4 of	SW 1/4 5	Section 36	47			
1	TION/INJECTION AND TYPE ( y & injection pressure)	DF FŁUID		TOWNSHIP Hersey	co	OUNTY	Osceola			
10 MCFD				DATE DRILLING COMPLETED 09-12-83	NO.		DUCED/UTILIZED Active			
WORK TO BE D	DONE BY: _ APPROVAL MA	NLED			SI	TARTING DATE				
	To Be Determined					A.S.A.P.				
	Υ		CASING AND CE	MENTING RECORD		<del></del>				
HOLE DIA.	CASING DIA. & WT, FT.	DEPTHS SET	CEM	ENT QUANTITY, TYPE, ADDITIVES	CMT. TOP	PERFORATIONS				
44 7440	204	100'	Driven	111 . 200	.72 0.010	N/A				
10 5/8"	11 3/4", 60# 8 5/8", 32#	953 <i>′</i> 5465 <i>′</i>	350 SX HONC	o lite + 200 sx Class "A" w	1/3% CaCl2	Surface Surface				
7 7/8"	<del></del>	81901	**			3500 es				
	CORO (Formation and depth. c		s, etc.):			1 0000	8094-81021			
See Exhi	bit "A"		-	: 810 sx Howco lite w/2% co wco Lite w/18% salt + 400 s cement.						
DETAIL PROPOS	ED PROCEDURES:	CEU! U	GICAL SUR	VEY			<del>.</del>			
		Strate.								
See Atta	chment	M	AR 0 8 1994							
		Permi	s & Bonding	Unit						
NAME/SIGNATURE	REQUIREMENTS:  E (Authorized Representative)  iels, Jr. Michigan Pi		tendent W	M Daniel Japproval Pate	2 1004	DATE 2	2/22/94 NATION DATE			
- ui	may / Mr	W	CANICL	7 MAK U	3 1994		<del></del>			



#### Michigan Department of Natural Resources Geological Survey Division

Permit Number 36925

Well Name & Number **BALDINO #1-36** 

#### RECORD OF WELL PLUGGING OR REWORK

REQUIRED BY AUTHORITY OF: ACT 61, PA 1939, as amended or ACT 315, PA 1969, as amended. Non-submission and/or falsification of this information may result in fines and/or imprisonment.

Type of Well Gas Field Name Hersey Unit

1/4 1/4 1/4, Section, Township, Range, County NE NW SW, Section 36-T17N-R9W, Osceola Cg., MI

Date Plugging / Rework Started 8-15-95

Date Plugging Rework Completed 8-17-**95**ላ<sup>P</sup>

Name and Address of Well OWNER MARATHON OIL COMPANY 4445 E. MOSHERVILLE ROAD JONESVILLE, MI 49250

Name and Address of Contractor/Service Company (attach additional sheets as needed)

McConnell & Scully, 133 W. Main St. Homer, MI 49245 Halliburton Service, PO Box 374, Mt. Pleasant, MI 48804

Indicate Operation & Type of Well Permit □ PLUGGING □ REWORK □ Act 61 Oil & Gas□ Act 315 Mineral Wells Name of DNR employee issuing Plugging Permit or Approving Change of Well Status Michael J. Moss Date Issued 3-3-94

D Tools, tubing, etc. left in hole - describe in Daily Chronology.

□ Well logs run - list types and depths in Daily Chronology.

#### For WELL PLUGGING Only (HOLE CONDITIONS AFTER PLUGGING) CASING Casing Size Where Set **Amount Casing** Depth Casing Pulled Cut/Perfed: Windows Milled 201 100" 4' 4' 11-3/4" 953' 4' 8-5/8" 4' 4' 54651 5-1/2" 81901 29001 2900'

		PLUGS		
O <del>e</del> pth Bottom Top		Type of Bridge or Plug	Cement Plugs: Cement type, # sx, and additives	Tagged Top? Y/N
8020	8020	Cement Retainer		Y
8020	7809	Cement	25 sx Class H	
7100	6889	Cement	25 sx Class H	
2900	2900	Cast Iron BP		Y
2900	2725	Cement	50 sx Class "A"	
975	800	Cemnet	50 sx Class "A"	ļ
50	Surf	Cement	15 sx Class "A"	<u> </u>
	1			<u> </u>

Chack a if NORM material was reinserted into wellbore. If so, describe materials fully in the Daily Chronology section on back of this form.

ror	AACTT	NC 44	UKK	Uniy

REWORK WAS TO: DETEMPORARILY ABANDON

☐ CONVERT TO: ☐ Disposal Well ☐ Production ☐ Storage ☐ Enhanced Recovery ☐

Other

☐ REMEDIAL: ☐ Perf & Test ☐ Repair Casing/Cement ☐ Redrill ☐ Other

		= TEOGRAC	N. O MEAA	rroduction	ZUITE O	Dispusai a Stu	Tage Ciliance	d Necovery S Other
			We	ell Casing R	ecord - BE	FORE Rework		
Cas	sing	Cem	ent		Perforat	tions		cid or Fracture
Size	Depth	Sacks	Туре	From	From To If plugged, HOW?		/?	eatment Record
79.44	<b>₽</b> **	CLOCICAL	SURVEY					
Cas	Well C			ork (indicate			nolete Test Record o	n next page)
Size	Deptri	Sacks		From	То	To If plugged, HOW?		cid or Frecture eatment Record
	05506							
BEFORE REWORK					The state of the s	REWORK	1	
Total Depth		Formation/Zona	Well Comp	detect For II	Total Dar	nth I f	-armation/Zone	Well Completed For

Data	(8b)		(Bbis)	(MCF)	Size Depth	sing	Date	or MCF Gas	Beginning	Ending	of Water	
								<u> </u>				
							ļ					
	<del></del> -	~~~							i			
						,		A CONTRACTOR OF THE CONTRACTOR				
	~											
								i			<u> </u>	
			<del></del>									
DAILY CHRONOLOGY - Describe in detail the deily chronology of rework / plugging, include days shut down. Describe exceptions to issued plugging instructions.												
Date	Narrative - also include dates pits filled, surface was restored, etc Use additional pages as needed.											
		•••;	SEE ATTACH	ED***								
							•					
	_											
NOTICE: Under sections 18a and 18b of Act 61 PA 1939, as amended, and section 23 of Act 315 PA 1969, as amended, a well owner has continuing liability for the integrity of a plugged well.  CERTIFICATION "I state that I am authorized by said Owner. This report was prepared under my supervision and direction. The facts stated herein are true, accurate and complete to the best of my knowledge."												
NAME and T					Au	thorized Sign	ture Cha	whit to ta	Plan.	Date	9-1-95	
NOTE: Bonds				il plugging is		cellar, rat and		, and pits filled,			nd records filed	

DAILY PRODUCTION TEST RECORD

DAILY INJECTION RECORD © Injection Well © Brine Disposal

## DAILY REPORT CENTRAL PRODUCTION REGION COMPANY OPERATED August 16, 1995

#### WORKOVER/RECOMPLETION

Hersey Unit
Baldino 1-36
Osceola County, MI
AFE NO:
AFE AMOUNT:

OPERATOR: Marathon Oil RIG: McConnell & Scully

MOC/WI:

MIRU: 08/14/95

COST TO DATE: \$

DAY: 1

PRESENT OPERATION: Prepare to set bottom plugs.

REMARKS: 08/15/95: Finish RU completion rig, RU Halliburton, pump 50 bbls brine down tubing to kill well. ND tree and flowline. NU BOP's. Release and equalize packer and TOOH. Wait on Halliburton Wireline. RU Halliburton Wireline, TIH w/gauge ring to 8080' - some debris in last 50', TOOH w/gauge ring, TIH w/5-1/2" cement retainer and set at 8020'. TOOH. RD Wireline. Install stinger on one joint of tubing. Shut in BOP's. SD for night.

COST TO DATE: \$

DAY: 2

PRESENT OPERATION: Laying down 5-1/2" casing.

REMARKS: 08/16/95: TIH with tubing and stinger. Sting into retainer at 8020' for injection test, Halliburton mixed 50 sx Class H cement, stung into retainer and displace 25 sx thru retainer, pull out and leave 25 sx on top of retainer. TOOH with tubing to 7100' and spot a 25 sx Class H cement plug. TOOH with tubing. ND BOP's and head. RU Enterra Oilfield Tools and cut 5-1/2" casing below slips. Pull stub and slips from casing head (slips were tight). NU head and BOP's. RU Halliburton Wireline, spear casing and freepoint 5-1/2" casing @ 2900'. TOOH with freepoint tool. Install cutter. TIH and cut casing @ 2900'. Lay down stub and spear. SD for night.

COST TO DATE:

DAY: 3

PRESENT OPERATION: Plugging complete - ready for clean-up. REMARKS: 08/17/95: TOOH laying down 5-1/2" casing. TIH w/2100' of tubing and TOH laying down. NU BOP's and tubing head, install 8-5/8" cast iron bridge plug on tubing and TIH to 2900', set bridge plug. RU Halliburton. Sting out of BP and spot a 50 sx Class A cement plug on top of retainer. Lay down 250' of tubing and pump 120 bbls of mud from Grein location down hole. TOOH laying down tubing to 975' where a 50 sx Class A cement plug was spotted, then TOOH laying down tubing. Remove BOP's and tubing head, pump 15 sx cement at surface and fill top 50'. RD Halliburton. Cut off 11-3/4" head in base of cellar and cap with a 1/2" steel plate well number 1-36 and date 8-16-95 were marked in top. RD completion unit. SD for night.

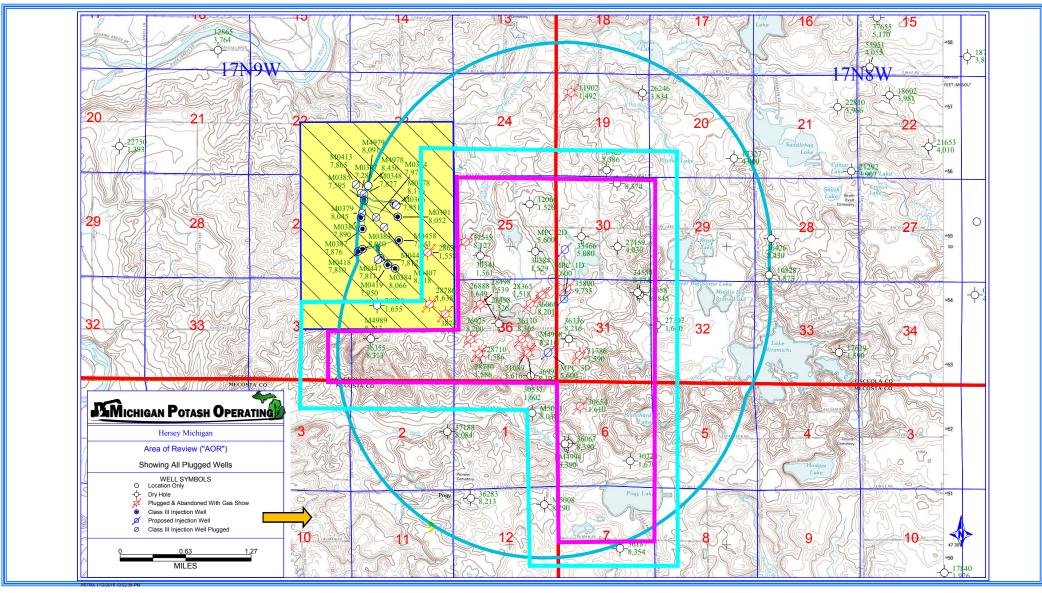


Figure B4. Map showing all plugged wells, shallow (that do not penetrate any confining horizon) or deep (that penetrate confining horzion) within the area of review. Total Depths are listed. There are several shallow Michigan Stray wells that do not penetrate the injection or confining horizon.

#### **BOYD 1-10**

#### NW NE NW Sec 10 T16N R9W MECOSTA COUNTY, MI

#### **CURRENT WELLBORE DIAGRAM**

**UPDATED APRIL 3rd 2014 BY JLT** API No. 21-107-36455-0000 24" CONDUCTOR DRIVEN TO 82' GL @ 1043' 22" Hole expected KB @ 1059' **SURFACE CASING WELL COMPLETION DATE: NA** 16"; 65#/ft. PLUGGING COMPLETION DATE: 6/2/83 SET @ 550' KB CMT W/410 SX POZ/200 SX CL A TO SURFACE 14-3/4" Hole expected **INTERMEDIATE CASING** 11 3/4"; 60#/ft. SET @ 798' KB CMT W/ 400 SX TO SURFACE 10-5/8" Hole expected PROD. CASING 8 5/8"; 32#/ft. SET @ 5220' KB 2 STAGES: #1: 720 SX #2: 850 SX CMT TO SURFACE PLUGGED W/CMT FROM TD TO SURFACE.

TD @ 7975' KB

#### **BABCOCK 1-36 WELL HISTORY**

DATE	DESCRIPTION
5/2/1983	SPUD.
5/31/1983	DRILLING COMPLETED. FORMATION AT TD CINCINNATIAN.
	24" CONDUCTOR SET AT 82'
	16" SET AT 550'; 410 SX POZ/200 SX CL A
	11 3/4" SET AT 798'; 400 SX
	8 5/8" SET AT 5220; 2 STAGES: #1 720 SX, #2 850 SX
5/31/1983	PLUGGING START DATE
	RUN DRILL PIPE OPEN ENDED TO 7975' AND SET 115 SX CL A TO 7573'
	PULLED DRILL PIPE TO 7573' AND SET 185 SX HOWCO LITE TO 6500'
	PULLED DRILL PIPE TO 6500' AND SPOTTED 185 SX HOWCO LITE TO 5420'
	PULLED DRILL PIPE TO 5420' AND SPOTTED 115 SX CL A TO 5020'
	PULLED DRILL PIPE TO 5020' AND SPOTTED 402 SX HOWCO KITE TO 2710'
	PULLED DRILL PIPE TO 2710' AND SPOTTED 401 SX HOWCO LITE TO 400'
	PULLED DRILL PIPE TO 400' AND SPOTTED 116 SX TO SURFACE.
6/2/1983	PLUGGING COMPLETION DATE

#### STATE OF MICHIGAN

Jun 2 9 1983

-(M	ı	,	N	Ų	, 7	18	E
		3	6	4	5	5	

DEPARTMENT OF NATURAL RESOURCES	0011				
Submit in DUPLICATE Within 30 Days after Well Comple		DEEPENING PERMIT NUMBER			
NAME(S) & ADDRESS OF OWNER(S) SHOWN ON PERMIT	NAME & ADDRESS	DF DRILLING CONTRACTORIS)			
Willmet, Inc. 225 <b>8</b> Enterprise Drive	James Biga 1315 S. Mi	rd Drilling Company ssion			

MAME (S) & ADDITESS OF CAME	N(S) SHOWN ON PERMIT		INAME & AD	DRESS OF DRICEING	CONTRACTOR	.37
Willmet, Inc.			James	Bigard Drilli	ng Company	
2256 Enterprise Drive	S. Mission					
Mt. Pleasant, MI 4885			Mt. P	leasant, MI 48	858	
LEASE NAME(S) & WELL NUMB					DIRECTIONA	LLY DRILLED
Boyd 1-10					YES .	vo 🗱 ov
SURFACE LOCATION	SECTION	TOWNSH	P	RANGE	TOWNSHIP N.	AME
NW NE NW	10	16	5N	9W	Grant	
FOOTAGES (North/South	1) 1 Line and 808	(E F1. from	East Lin	e of quarter section	COUNTY NAM Mecos	
SUBSURFACE LOCATION				RANGE	TOWNSHIP N	AME
FOOTAGES (North/South		(6	ast/West)	an of quarter eastion	COUNTY NAM	WE
	TOTAL DEPTH OF WE					
DRILLING BEGUN 5-2-83	Driller 7975 Log		1		ELE	VATIONS
DRILLING COMPLETED	FORMATION AT T.D.		FT. DRLD.	- ROTARY TOOLS	K.B.	R.F.
5-31-83	Cincinnatia	n	FromO	то7975	1059	1058
E WELL COMPLETED	PRODUCING FORMA	TION(S)	FT. DALD.	- CABLE TOOLS	R.T.	Grd.
-			From	To	.	1043

#### CASING, CASING LINERS AND CEMENTING

#### **PERFORATIONS**

SIZE	WHERE SET	CEMENT	Ft. Pulled	DATE	NUMBER	INTERVAL PERFORATED	OPI	EN
2411	821	D.P.		DATE	HOLES	INTERVAL PERFORATED	YES	NO
16"	550 <b>'</b>	410 Sx Poz/200	Cl A					
11 3/4"	798¹	400 Sx				NONE		
8 5/8"	5220'	2 Stages: #1 72	0 Sx					
		#2 85	0 Sx					

#### **GROSS PAY INTERVALS**

#### ALL OTHER OIL AND GAS SHOWS OBSERVED OR LOGGED

FORMATION	OIL OR GAS	FROM	το		OIL	1	\	NHER	E OBS	ERVE	D (X)	
NONE				FORMATION	OR GAS	DEPTH	Sam- ples	Odor	Pits	Mud Line	Gas Log.	Fill
				Reed City	Gas	3850					Х	
				Sour Zone	Gas	4450	1				Х	
				A2 Carb	Gas	6750					X	

#### STIMULATION BY ACID OR FRACTURING

#### WATER FILL UP (F,U.) OR LOST CIRCULATION (L.C.) (X)

DATE	Interval Treated	Materials and amount used	FORMATION	F.U.	L.C.	DEPTH	AMOUNT
	NONE		NONE				
L					<u> </u>		
				}			

#### MECHANICAL LOGS, LIST EACH TYPE RUN DEPTH CORRECTION DEVIATION SURVEY PLUGGED BACK

	_	•								
Brand	(x)	LOG TYPES	LOGGED INTERVALS	DEPTH	CORRECT'N	RUNAT	DEGREES	YES	NO	DEPTH
Schlumberger	XX	LDT-CNL-GR	600-7975			1750	1°		X	
Birdwell		Sonic	200-7975			4650	1°		X	
9						6100	2°		X	
<b>E</b>						7720	3°		X	

#### PRODUCTION TEST DATA

ī	OIL - Bbis/day	GRAVITY - OAPL	COND. Bbls/day	GAS - MCF/day	WATER - Bbls/day	HoS - Grains/100 cu. ft.	I B.H.P. AND DEPTH I
ı	•	1				2	
- (					1		
					· t		

#### I AM RESPONSIBLE FOR THIS REPORT. THE INFORMATION IS COMPLETE AND CORRECT.

Ì	DATE/14/83	NAME AND TITLE (PRINT) William E. Booker, Geologist	SIGNATURE.	E Buch	

#### STATE OF MICHIGAN **DEPARTMENT OF NATURAL RESOURCES**

GEOLOGICAL SURVEY DIVISION JUN 2 9 1983 WELL PLUGGING RECORD

YES

LANSING HAS COPY

Ē	RMIT	NUMBER	

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MBER	2
5	S ASO.
1E	-43

(Submit in TRIPLICATE Within 30 Days After Plugging is Completed) OCT 0 2 1984 FIELD NAM FIMAL BIBCOIN COMPLETE NAME(S) AND ADDRESS OF WELL OWNER Willmet, Inc, 2258 Enterprise Drive, Mt. Pleasant, Michigan 48858 WELL NUMBER COMPLETE LEASE OR FARM NAME(S) 1-10 Boyd TOWNSHIP COUNTY WELL LOCATION NW 1/4 NW 1/4 SEC. 10 T. 16N R.9W Grant Mecosta NE % TYPE OF WELL (Oil, Gas, Dry Hole, etc.) TOTAL DEPTH FORMATION 7975 Cincinnatian Dry Hole DEPT. REPRESENTATIVE(S) WHO ISSUED PERMIT OR WITNESSED PLUGGING DATE PLUGGING STARTED DATE PLUGGING COMPLETED 5-31-83 6-2-83 Skipper

	CASING RECORD							
SIZE CASING	DEPTH SET	AMOUNT RECOVERED	SHOT OR RIPPED					
24"	821							
16"	550'							
11 3/4"	7981							
8 5/8"	5220							
	<del>                                     </del>	<del> </del>						

Were tools, tubing, casing, etc., lost or left

in the hole before or during plugging?

BRIDGES OR PLUGS						
TYPE (Brush, Stone, DEPTH SACKS OF Cement, Mechanical, etc.) PLACED AND ADD						
Cement	7975	115 Sx C1 A				
Cement	7573	185 Sx Howco Lit				
Cement	6500	185 Sx Howco Lit				
Cement	5420_	115 Sx Cl A				
Cement	5020	402 Sx Howco Lit				
Cement	2710	401 Sx Howco Lit				
Cement	400	116 Sx C1 A				

If yes, give details:

Did a Service Company pump mud, spot cement, or set bridge plugs?	XXYES	Пио	If yes, give name and address: Halliburton
Was the well plugged by a Company or Contractor other than Owner or Operator?	YES	XX NO	If yes, give name and address:
Representatives of Owner, Operator, Company, o plugging: Marvin Woods	r Contractor v	vho witnessed	
pulled drill pipe to 7573 and s spotted 185 sx Howco Liteto 542 5020, pulled drill pipe to 5020	et 185 sx 0, pulled and spot	Howco Lighted 402 s	en ended to 7975 and set 115 sx C1 A to 7573 te to 6500, pulled drill pipe to 6500 and pe to 5420 and spotted 115 sx C1 A to x Howco Lite to 2710, pulled drill pipe ed drill pipe to 400 and spotted 116
			(USE REVERSE SIDE IF NEEDED)

ONKX

"I state that I am authorized by said Owner or Operator to ma tion, and that the facts stated herein are true, correct and com		
NAME AND TITLE (Typed or Printed)		COMPANY NAME AND ADDRESS
William E. Booker, Geologist		Strickler Geological Services, Inc.
SIGNATURE	DATE (Month, Day, Year)	1425 S. Mission
Willen & Broken	6/14/83	Mt. Pleasant, MI 48858

CERTIFICATION

	OPERATORS USE	
scription of Detail (cont.) or Other Supplemental Data	:	
7		
	DEDARTMENT LIGE ONLY	
lemental Plugging Data and Site Conditions:	DEPARTMENT USE ONLY	
1		
25/54 loc Off, 18 contained	and planted.	
	······································	
	· · · · · · · · · · · · · · · · · · ·	
FINAL IN	SPECTIONS BY DEPARTMENT REPRESENTATIVES	
SIGNATURE	DIVISION	DATE
John R. Execut	Geol Scruey	9/28/84

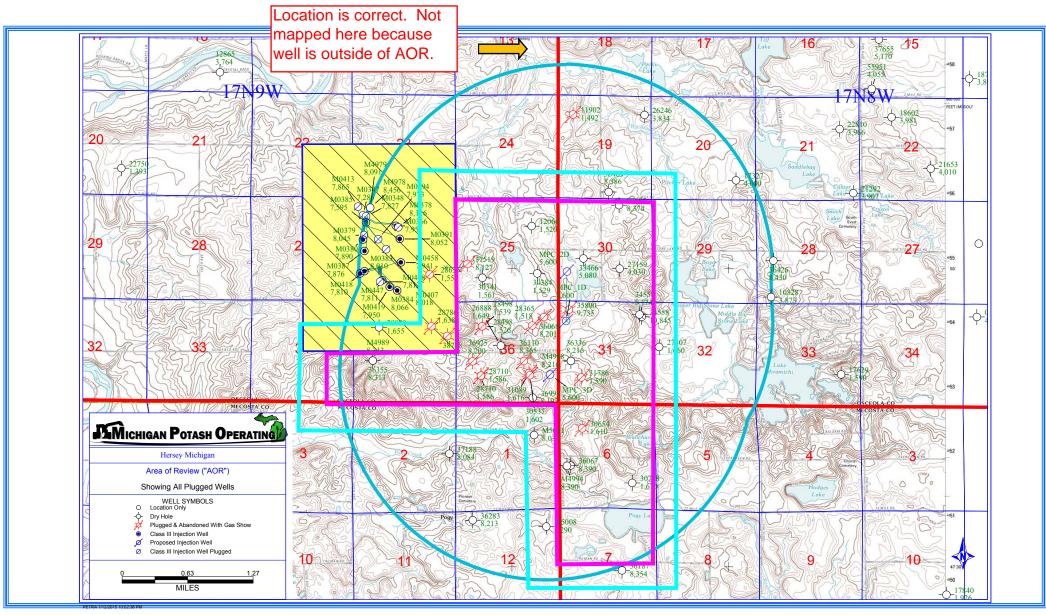


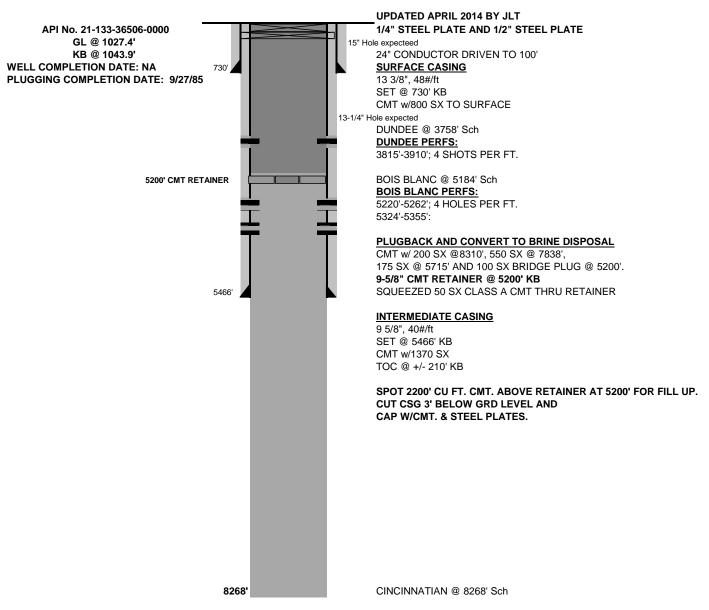
Figure B4. Map showing all plugged wells, shallow (that do not penetrate any confining horizon) or deep (that penetrate confining horzion) within the area of review. Total Depths are listed. There are several shallow Michigan Stray wells that do not penetrate the injection or confining horizon.



#### **COMPTON 1-13**

#### SW SE NE Sec 13 T17N R9W OSCEOLA COUNTY, MI

#### **CURRENT WELLBORE DIAGRAM**



PBTD @ 4900' KB TD @ 8310' KB

#### **COMPTON 1-13 WELL HISTORY**

	COMPTON 1-13 WELL HISTORY	
<b>DATE</b> 2/26/1983 3/26/1983	DESCRIPTION SPUD. DRILLING COMPLETED. FORMATION AT TD CINCINNATIAN. TD 8310' 24" CONDUCTOR SET AT 100' 13 3/8" SET AT 730'; 800 SX 9 5/8" SET AT 5466'; 1370 SX	
4/12/1983 3/29/1983	REWORK COMMENCED TRIPPED IN HOLE OPEN ENDED AND SPOTTED 200 SX CLASS A AT 8310', SPOTTED 550 SX POZ AT 7838', SPOTTED 175 SX CLASS A AT 5715'.	
4/12/1983 4/13/1983	RIGGED UP. DISPLACED HOLE WITH FW - PERFED 5324-5355.	
4/14/1983	SPOTTED 1,000 GAL. 15% MCA	
4/14/1983	PUMPED 68 BBLS HCI ACID 28%, 7 MIN PER BBL 1000 psi. INCREASED PUMP psi TO 1200 psi, RATE 4 MIN PER BBL. INCREASE PUMP psi TO 1500 psi, RATE 2 MIN PER BBL. INCREASE PUMP RATE psi 1800 psi, NO INCREASE IN PUMP RATE. INCREASE PUMP psi TO 2000 psi, 3/4 BBL PER MIN. INCREASE PUMP psi TO 2200 psi, 3 BBL PER MIN. PUMPED 1200 BBLS OF FRESH WATER AT 2200 psi. WELL FLOWED BACK 200 BBLS OF WATER AND ACID GAS.	
4/15/1983 4/16/1983	PERF 5220' - 5262', 4 HOLES PER FT. SET PLUG. TEST FOR COMMUNICATION BETWEEN PERFS. PERFS ARE COMMUNICATING. TRIP IN HOLE WITH CEMENT RETAINER. SPOT 70 SX CLASS A CEMENT AT 5400'. SET CEMENT RETAINER AT 5200' AND SQUEEZED CEMENT 2400 psi. SPOT 100 SX CLASS A CEMENT AT 5200'.	
4/17/1983	PERFORATE 3915' TO 3910', 4 SHOTS PER FOOT.  SPOT 350 GALLONS MCA ACID AT PERFS. ACIDIZE WELL WITH 10,000 GALLONS HCI ACID.  PUMPING 6 BBLS PER MIN AT 500 psi. DROPPED 100 PERF BALLS. PUMPING 7 BBLS PER  MINUTE AT 800 psi. DROPPING PER BALLS. PUMPING 8 BBLS PER MINUTE AT 700 psi. 9-1/2  BBLS PER MINUTE AT 800 psi. DISPLACED ACID AT 10 BBLS PER MINUTE AT 800 psi.  PUMPING FRESH WATER AT 9-1/2 BBLS PER MINUTE AT 700 psi. PUMPED 787 BBLS OF  FRESH WATER AT 11.25 BBLS PER MINTUE AT 550 psi WITH RIG PUMP.	
4/17/1983	REWORK COMPLETED. TD AFTER REWORK 4900'.	
9/25/1985	PLUGGING STARTED SPOT 200 SX HOWCOLITE CEMENT PLUG @ 4864' SPOT 100 SX THIX-O-TROPIC @ 3922' SPOT 100 SX THIX-O-TROPIC @ 3875' SPOT 194 SX HOWCOLITE @ 3583' SPOT 194 SX HOWCOLITE @ 2743' SPOT 194 SX HOWCOLITE @ 1904' SPOT 118 SX HOWCOLITE @ 1061' SPOT 100 SX HALLIBURTON COMMON @ 561' AND 281' CUT OFF 13-3/8" AND 9-5/8" CASING 3' BELOW GROUND.	
0/07/4005	CAP WITH 1/2" AND 1/4" PLATE RESPECTIVELY.	

PLUGGING COMPLETED.

9/27/1985

#### STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES

1983

PERMIT NUMBER 36506

, L		ATE Within 30 Days after			· ተ	DEEPENING	PERMIT NUMBE	R	
	Submit in DOPLIC	ATE WHITE SU Days after	Hea Compie	,,,,,,,	· l				
NAME(S) 8	ADDRESS OF OWNER	S) SHOWN ON PERMIT		NAME & AD	DRESS O	FORILLING	CONTRACTORIS	;)	
Willm	et, Inc.	1		T. D.	Provin	s			
2250	Enterprise Driv	re		2113 E	nterpr	ise Driv	е		
,	leasant, MI 488			Mt. Pl	easant	, MI 488.	58		
LEASE NA	ME(S) & WELL NUMBER	SHOWN ON PERMIT					DIRECTIONAL	LYDR	LLED
Compt	on #1-13						YES NO	o <b>⊠</b>	
SURFACE	LOCATION	SECTION	TOWNSHI	P	RANGE		TOWNSHIP NA	ME	
SW SE	NE	13	171	₹	9	W	Hersey	•	
FOOTAGE	S (North/South)		(E	ast/West)			COUNTY NAM	E	
330	Ft. from South	Line and 961	_Ft. from_	East_Line	e of quarte	or section	Osceol	a	
SUBSURFA	CE LOCATION	SECTION	TOWNSHI	Ρ.	RANGE		TOWNSHIP NA	ME	
			<u> </u>		<u> </u>	·			
	S (North/South)			ast/West)			COUNTY NAM	E	
		Line and				er section			
	NG BEGUN	TOTAL DEPTH OF WE	-	TYPE WELL			{		
2-26-	83	Driller_8310_ Log_	8311	Dry Ho			ELEV	ATIONS	<b>&gt;</b>
A DRILLII	VG COMPLETED	FORMATION AT T.D.		FT. DRLD	ROTAR	YTOOLS	K.B.	8.6.	
r 3-26-8		Cincinnatian		FromO	To	8311	1043.9	10	43.6
E WELL-C	OMPLETED	PRODUCING FORMAT	ION(S)	FT. DRLD	CABLE	roots	R.T.	Grd.	
				From	To		<u> </u>	10	27.4
	CASING, CASING LINE	ERS AND CEMENTING				PERFOR	ATIONS		
SIZE	WHERE SET	CEMENT	F1 Pulled	1	MUIMARE				OPEN

SIZE	WHERE SET	CEMENT	Ft. Pulled	DATE NUMBER		INTERVAL PERSONATED		EN
24"	100'	DP		DATE	HOLES	TO INTERVAL PERFORATED		NO
13 3/8"	730'	800 · Sx				NONE		
9 5/8"	5466'	1370 Sx						
							LI	

#### **GROSS PAY INTERVALS**

#### ALL OTHER OIL AND GAS SHOWS OBSERVED OR LOGGED

FORMATION	OIL OR GAS	FROM	TO		OIL	1		VHER	E OBS	ERVE	D (X)	
NONE				FORMATION	OR GAS	DEPTH	Sam- ples	Odor	Pits	Frue	Gas Log	Fill Up
				Det. Rv. Sour	Gas	4500	X			Х		
				Reed Cty Dol	Gas	4000				X		
				Trav. Lime	Gas	3500				X		

#### STIMULATION BY ACID OR FRACTURING

#### WATER FILL UP (F.U.) OR LOST CIRCULATION (L.C.) (X)

						-	
DATE	Interval Treated	Materials and amount used	FORMATION	F.U.	L.C.	DEPTH	AMOUNT
	NONE		NONE				
				1			
	<u> </u>						
	1		1	Į		•	

#### MECHANICAL LOGS, LIST EACH TYPE RUN

#### DEPTH CORRECTION DEVIATION SURVEY PLUGGED BACK

Brand	(x)	LOG TYPES	LOGGED INTERVALS	DEPTH	CORRECT'N	RUN AT	DEGREES	YES	NO	DEPTH
Schlumberger	Х	LDT-CNL-GR	100-8311			2100	1°			
Birdwell		Dual Micro	3000-8311	1		2500	150			
P		NGT	5464-8308			4500	3/4°			
		Sonic	200-8311			7300	11/40			<u> </u>

#### PRODUCTION TEST DATA

OIL - 8bis/day	GRAVITY - PAPI	COND. Bols/day	GAS - MCF/day	WATER - Bols/day	H <sub>2</sub> 5 - Grains/100 cu, ft.	B.H.P. AND DEPTH
				,		

#### I AM RESPONSIBLE FOR THIS REPORT. THE INFORMATION IS COMPLETE AND CORRECT.

		والمنتق والمنت		
	DATE	NAME AND TITLE (PRINT)	SIGNATURE	1
1		William E. Booker, Geologist		VS h
	4/21/03	william b. booker, deologist	William	1 ) cosc
1		The second second second section is a second		

#### STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES

GEOLOGICAL SURVEY DIVISION

APR	06	1983	8 g
		//	

LEAVE BLANK
DEEPENING PERMIT NUMBER
DATE ISSUED

APPLICATION

PERMIT NUMBER 36506			TO GEWELL S TIN QUADRUI		US	g 1983	FIELD NA Wildcar		
NAME AND ADDRESS OF WELL C	WNER 2250 Enterprise	Dr.	Mt. Pleas	ant,	Mi.	48959			
LEASE OR FARM NAME Compton							WELL NU	MBER -13	
WELL LOCATION SW SE NE,	SECTION 13	т.	17N	R.	9W	Township Hersey	0sc	COUNTY eola	
APPROVAL REQUESTED TO	(Deepen, Plug Back, Conv	ert to Inj				rarily Abandon on the property of the property		osal	
DATE DRILLING COMPLETED 3/26/83	DATE LAST PRODUC	EO	LAST	PRODU	CTION OIL,	(Amt/day)	WTR.,	M.C.F. GAS	
work to be done by Provins #7			•					RT (DATE) 3/27/83	

CASING AND CEMENTING RECORD									
DEPTH SET	NO. SACKS CEMENT	PERFORATIONS							
700									
730	800								
5466	1410								
		· · · · · · · · · · · · · · · · · · ·							
	DEPTH SET 100 730	DEPTH NO. SACKS CEMENT 100 730 800							

FORMATION RECORD

(Formation and depth, Oil, Gas & Wtr. shows, etc.)

CONFIDENTIAL

DESCRIBE PROPOSED WORK IN DETAIL:

Plug back as per Mineral Wells instructions: Class A cmt. 8310-7850, gel cmt. 7850-5700, class A cmt. 5700-5300. Clean out to 5420 and set BR Perf Bois Blanc, 4 spf. Test inj. rate. If unsuccessful, will set retainer and squeeze perfs, using 50 sx cmt. Then will perf. and test Dundee for injection. If completed, tubg. will be set on packer just above perfs. Annulus to be loaded w/inhibited water and have wellhead connections for monitoring. Surf. facility plan to be submitted before construction. This approval is temporary and is subject to review and revocation if not in compliance with standards for the injection of brine approved for the State of Michigan by the USEPA.

The proposed work as outlined above and approved by the Supervisor or his Authorized Repres with the provisions of Act 61, P.A. 1939 and/or Act 326, P.A. 1937 and the rules and regulation	entative will be executed in accordance ns issued and adopted thereunder.
SIGNATURE (Well Owner or Authorized Representative)	DATE
APPROVED BY: The State of the CADILLAC	4/6/83

### STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES SUFERVISOR OF WELLS

JUN 2 7 1983 JUN 0 3 1983

#### **WELL REWORK RECORD**

FILE IN DUPLICATE WITHIN 30 DAYS AFTER COMPLETION OF REWORK OR DEEPENING
(Replaces GS 38)

•			
PERMIT NUMBER 36506	DEEPENING PERMIT NUMBER	FIELD NAME Wildeat	
NAME AND ADDRESS OF WELL PPG 011 & Gas Co.,	OWNER (2) (1) (2) (2) (2) (2) Enterprise Drive, Mt	. Pleasant, MI 48858	
LEASE OR FARM NAME			WELL NUMBER
Compton			1-13
WELL LOCATION	SECTION	TOWNSHIP	COUNTY
SW SE NE	13 T. 17	'N R. 9W Hersey	Osceola
WELL COMPLETED FOR (Oil, Ga Injection, etc.) Brine Di	s, Gas Storage, Brine Disposel, Water sposal	TOTAL DEPTH AFTER REWORK 4900	MECHANICAL LOGS RUN
WELL COMPLETED IN (Name Ro	ck Formation and Zone of Completion)	DATE REWORK COMMENCED	DATE REWORK COMPLETED
Reed City Dolomite		4-12-83	4-17-83
NAME AND ADDRESS OF CONTR T. D. Provins Drilli	RACTOR ng Co., 2113 Enterprise D	rive, Mt. Pleasant, MI	48858

			WEI	L CASING F	RECORD -	BEFORE REWORK		
Cas	ing	Cement		Perto	rations	Acid or Fracture		Perforations
Size	Depth	Sacks	Турв	From	To	Treatment Record		If plugged, how?
24"	100	DP						
13 3/8"	730	800				1000 gal. MCA-15%	Squ	eezed thru cement
9 5/8"	5466	1370		5324	5355	3000 Gal. 28%	70	sx retainer set
				5220	5262		at	5200
		3815	3910	350 Gal. MCA		Open		
						10,000 28% HC1		

	WELL CASING RECORD - AFTER REWORK (Indicate additions and changes only)								
C	Casing Cement Perforations		tions	Acid or Fracture	Perforations				
Size	Depth	Sacks	Туре	From	То	Treatment Record	If plugged, how?		
·				<u> </u>					
	<b></b>								
	<b></b>								

#### DESCRIBE REWORK OPERATIONS IN DETAIL

- 3-29-83 Tripped in hole open ended and spotted 200 sx Class A at 8310, spotted 550 sx POZ at 7838, spotted 175 sx Class A at 5715.
- 4-12-83 Rigged up.
- 4-13-83 Displaced hole with FW perfed 5324-5355.
- 4-14-83 Spotted 1,000 gal. 15% MCA.

(SEE ATTACHED)

WELL REWORK RECORD, - REWORK OPERATIONS Continued PPG 0:11 & Gas Co.
Compton #1-13
SW SE NE, Sec. 13, T17N R9W
Hersey Twp., Osceola Co.

- 4-14-83 Pumped 68 barrels HCl Acid 28%, 7 minutes per barrel 1000 psi. Increase pump psi to 1200 psi, rate 4 minutes per barrel. Increase pump psi to 1500 psi, rate 2 minutes per barrel. Increase pump rate psi to 1800 psi, no increase in pump rate. Increase pump psi to 2000 psi, 3/4 barrels per minute. Increase pump psi to 2200 psi, 3 barrels per minute. Pumped 1200 barrels of fresh water at 2200 psi. Well flowed back 200 barrels of water and acid gas.
- 4-15-83 Perforate 5220' 5262', 4 holes per foot. Set plug.
- 4-16-83 Test for communication between perfs. Perfs are communicating. Trip in hole with cement retainer. Spot 70 sx Class A cement at 5400'. Set cement retainer at 5200' and squeezed cement 2400 psi. Spot 100 sx Class a cement at 5200'. Perforate 3815' to 3910', 4 shots per foot.
- 4-1-7-83 Spot 350 gallons MCA acid at perfs. Acidize well with 10,000 gallons HCl acid. Pumping 6 barrels per minute at 500 psi. Dropped 100 perf. balls. Pumping 7 barrels per minute at 800 psi. Dropping perf. balls. Pumping 8 barrels per minute at 700 psi. 9½ barrels per minute at 800 psi. Displace acid at 10 barrels per minute at 800 psi. Pumping fresh water at 9½ barrels per minute at 700 psi. Pumped 787 barrel of fresh water at 11.25 barrels per minute at 550 psi with rig pump.

STATE OF MICHIGAN TYPE OR PRINT REQUEST FOR TRANSFER OF A PERMIT WELL TYPE PERMIT NO 36506 Department of Natural Resources Dry Hole SUBMIT COPIES TO: Geological Survey Division PR 2 6 1988
Box 30028 Box 30028 Hersey-Clinton Lansing, Michigan 48909 WELL NAME AND NUMBER Filing for change of ownership of well is required in accordance with WAC Compton 1-13 61, P.A. 1939 and Act 345 P.A. 1969, as amended, and Administrative WILL LOCATION Rules promulgated thereunder. SW 1/4 SE 1/4 NE 1/4 SECTION LOWNSHIP COUNTY Hersey Osceola TRANSFER OF A PERMIT FROM: NAME(S) OF SELLING OWNER(S) PPG 01 & Gas Co. Inc.

ADDRESS Number and Street - City or Town - State - Zip Code - Yelephone One Jackson Square, Suite 600, Jackson, MI 49201 (517) 782-8145 All operating rights are discharged by Owner(s) Representative(s) PPG Oil & Gas Co., Inc., Richard M. Rompala ELIGIBILITY FOR PERMITS IS CONDITIONED UPON COMPLIANCE WITH THE STATUTES. RULES AND ORDERS OF THE DEPARTMENT OF NATURAL RESOURCES. PERMITS WILL NOT BE GRANTED TO PERSONS NOT IN COMPLIANCE. NON-SUBMISSION AND/OR FALSIFICATION OF THIS INFORMATION MAY RESULT IN FINES AND/OR IMPRISONMENT. TRANSFER OF A PERMIT TO: NAME(S) OF ACQUIRING OWNER(S) Marathon Oil Company ADDRESS Number and Street -- City or Town --- State -- Zip Code -- Telephone One Jackson Square, Suite 600, Jackson, MI 49201 (517) 782-8145 (We) (I) have acquired the well under this permit and assume full responsibility for the drilling, operation, and abandonment in conformity with the law, regulations and orders. BONDING CO. SAFECO Insurance Company of America SURETY BOND: SINGLE WELL ATTACHED BOND NUMBER 5194219 ON FILE All operating rights and responsibilities are assumed by Owner(s) Representative(s) 3/28/88 Marathon Oil Company, Donald R. Hall

FOR DEPARTMENT OF NATURAL RESOURCES USE ONLY

6/28/88

DISTRIBUTION BY DNR

Lansing

☐ Acquiring Owner Selling Owner

Field

#### OHA DISTRIBUTION Permittee - Orig & 1 casy

#### STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES

PERMIT HUMB	ER	
	36506	
FIELD HAME		•

District Office		OCCUPANT DOLLARS DISTRICT	•		
Division Office — 2 copies field Office — File copy Others — On request	PERMIT	TO PLUG AND AE	BANDON	Hersey	•
PPG 011 & Gas					
Compton #1-13		•			
SW SE NE,		TION 13 T 17N R 9W	Hersey	Osceola	COUNTY
TYPE OF WELL (Oil, Cles, Dry Hole, etc.) BDW	DATE COMPLETED 3/26/83	a.s.a.p.	Don S	maith	ATE
LAST PRODUCTION			PLUGGING TO	BE DONE BY	
BOPD <b>SWPD</b>	MCFGPD	DATE	wi1	l notify	
PERMIT MAILED TO		COPIES MAILED TO			

CASING AND CHMENTING RECORD								
HOLE DIA	CASING DIA. & WT/FT.	DEPTHS SET	CEMENT QUANTITY, TYPE, ADDITIVES	CMT. TOP.	PERPORATIONS			
	24"	100'	DP					
	13-3/8"	730'	800	circl	5355-24			
	9-5/8"	5466'	1370	210	5265-20			

WD 10/2 0	GEOLOGIC DAT	FA; GAS AND OIL SHOWS; DRILLING AND COMPLETION DATA:
KB 1043.9	**************************************	
BOD 488	DD 3758	CLINTON 8022
BL 1324	RCA 3828	CABOTHEAD 8158
STRAY 1422	RCD 3830	MANIT 8237 ·
MARSH 1538	DRSZ 4486	CINC 8268
SUNB 2459	RICH 4874	LTD 8311
ELLS 2554	BS 6576	
ANT 2958	A2C 6944	
TF 3130	A2E 7083	•
TL 3184	A1C 7453	,
BSH 3700	NIA 7902	PLUGONIG REQUIREMENTS*

higging requirements dutlined are to be executed in accordance with the provisions of Act 61, P.A. 1936, as amended, and rules and orders adopted thereunder.

RIH; SET 9-5/8" CMT. RETAINER AT 5200'+.
SQUEEZE 50 SX BELOW: SPOT 2200' CU FT. CMT. ABOVE FOR FILL UP. CUT CSG 3' BELOW GRD LEVEL & CAP W/CMT. & STEELPLATE.

"NOTE BONDS CANNOT BE RELEASED UNTIL A PLUGGING IS COMPLETED, CELLAR RAT HOLE AND PITS FILLED, WELL SITE PESTORED AND RECORDS FILED. WATER WELLS MUST BE PLUGGED ACCORDING TO RULE 186 OF ACT 294 P.A. 1945, "GROUND WATER QUALITY CONTROL". It is further made a requirement of this permit that the applicant give notice to the public utilities in accordance with Act 53, P.A. 1974 C.L. 480 701 to 460 718 and comply with each of the requirements of the act.

ļ	dilines in secondaries with part 33, FM 1974 C.S. 400 // 10 400 /16 and compty with sech of the requirements of the act.							
	AUTHORIZED BY (signature)	1.	Mads	CADILLAC D#6	9/25/85			

### STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES GEOLOGICAL SURVEY DIVISION

#### CADILLAC HAS COPY

If yes, give details:

**WELL PLUGGING RECORD** 

(Submit in TRIPLICATE Within 30 Days After Plugging is Completed)

PERMIT NUMBER
36506
FIELD NAME

But the state of

100011111				
			FIELD NAME	
			Hersey	
COMPLETE NAME(S) AND AL	DDRESS OF WELL OWNER			
PPG 0il & Gas Co	., Inc.			
COMPLETE LEASE OR FARM	NAME(S)	the state of the s	. Part 186 10 Mg. 17 page gar and Marketter 1971 1 section are assemble Mg. 16 M. All Marketter	WELL NUMBER
Compton				1-13
WELL LOCATION			TOWNSHIP	COUNTY
SW 1/4 SE 1/4	NE % SEC. 13 T.	17N R. 9W	Hersey	Osceola
TYPE OF WELL (Oil, Gas, Dry	Hole, etc.)	TOTAL DEPTH	FORMATION	
Dry		8311	Cincinnatian	
9-25-85	DATE PLUGGING COMPLETED 9-27-85	DEPT REPRESENT	ATIVE(S) WHO ISSUED PE	RMIT ON XXX X X XXXXXXXXXXXXXXXXXXXXXXXXXXX

CASING RECORD			
SIZE CASING	DEPTH SET	AMOUNT RECOVERED	SHOT OR RIPPED
24"	100'		
13 3/8"	730'	800'	
9 5/8"	5,466'	1370'	

Were tools, tubing, casing, etc., lost or left

BRIDGES OR PLUGS			
TYPE (Brush, Stone, Cement, Mechanical, etc.)	DEPTH PLACED	SACKS OF CEMENT AND ADDITIVES	

in the hole before or during plugging?		XINO	
Did a Service Company pump mud, spot cement, or set bridge plugs?	X YES	□NO	If yes, give name and address: Halliburton
Was the well plugged by a Company or Contractor other than Owner or Operator?	YES	X NO	If yes, give name and address: Chet Lowery
Representatives of Owner, Operator, Company, optugging:	r Contractor v	vho witnesse	d
DESCRIBE IN DETAIL HOW WELL WAS PLUGGED 175 sx @ 5715' and 100 sx bride	Previousl pe plug 0	y plygger 5200 :	d with 200 sx @ 8310', 550 sx @ 7838', (3/27/83)
Halliburton spot 205 sx Howcoli 100 sx Thix-o- 100 sx "		0 :	1864' 1922' CEOLOGICAL SURVEY 1875'
194 sx Howcoli 194 sx "	te	@ : @ 2	9583' 00T 2 4 1985
194 sx Howcoli 118 sx " 100 sx Hallibu		0 1	1904' 1061' Regulatory Control Unit 1061' and 281'
			1. Cap with 1/2" and 1/4" plate respectively.

"I state that I am authorized by said Owner or Operatorion, and that the facts stated herein are true, correct a		
NAME AND TITLE (Typed or Printed) Donald P. Smith		PPG 011 & Gas Co., Inc.
SIGNATURE	DATE (Month, Day, Year) 10/16/85	2258 Enterprise Drive Mt. Pleasant, MI 48858

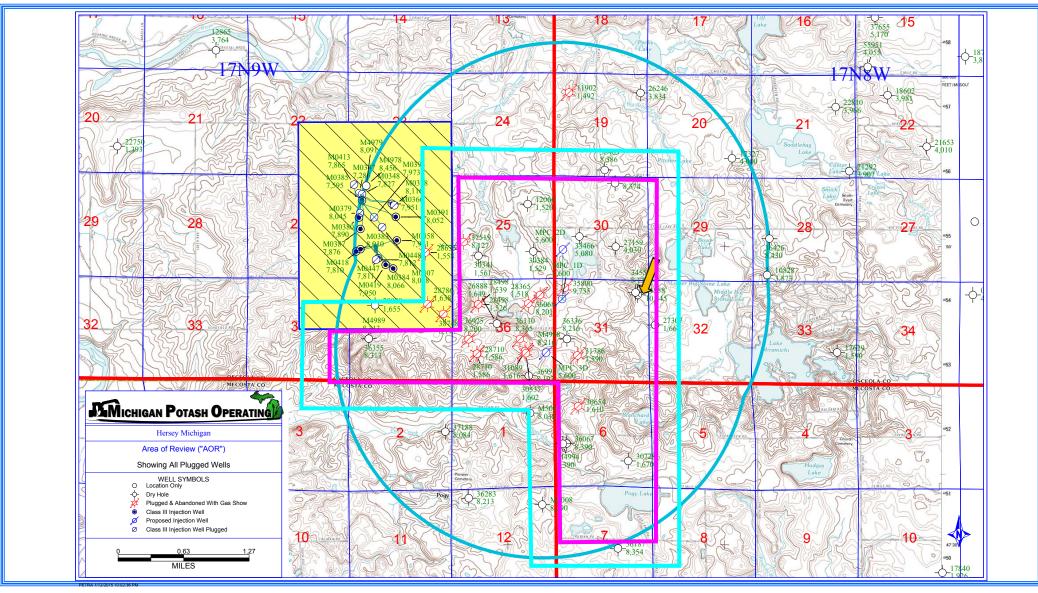
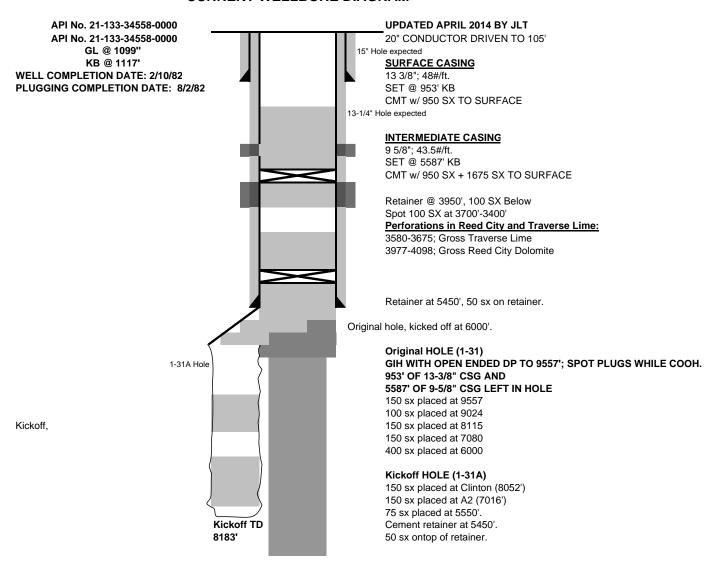


Figure B4. Map showing all plugged wells, shallow (that do not penetrate any confining horizon) or deep (that penetrate confining horzion) within the area of review. Total Depths are listed. There are several shallow Michigan Stray wells that do not penetrate the injection or confining horizon.

#### **FREUDENBURG 1-31, 1-31A**

SE NE NE Sec 31 T17N R8W OSCEOLA COUNTY, MI

#### **CURRENT WELLBORE DIAGRAM**



TD @ 10858" KB

#### FREUDENBURG 1-31, 1-31A WELL HISTORY

DATE **DESCRIPTION** 5/13/1981 SPUD. DRILLING COMPLETED. FORMATION AT TD TREMPEALEAU. TD 10858'. 7/31/1981 20" CONDUCTOR SET AT 102.6' 13 3/8" SET AT 953'; 950 SX 9 5/8" SET AT 5587'; 950 SX + 1675 SX 7/31/1981 ORIGINAL HOLE, DRILL AND ABANDON START DATE GIH WITH OPEN ENDED DP TO 9557'; SPOT PLUGS WHILE COOH. WOC PREPARING TO SIDE TRACK FOR FREUDENBURG 1-31A AND TO TEST UPHOLE INTERVALS CEMENT PLUG @ 9557' 150 SX CEMENT PLUG @ 9024' 100 SX CEMENT PLUG @ 8115' 150 SX CEMENT PLUG @ 7080' 150 SX CEMENT PLUG @ 6000' 400 SX KOP 7/31/1981 ORIGINAL HOLE FILLED WITH CEMENT TO BASE OF INTERMEDIATE. 8/2/1981 Begin Direcitonal Kick-ofl 8/13/1981 IN KICKOFF HOLE, SPOT 150 SX ACROSS CLINTON. SPOT 150 ACROSS A2. SPOT 75 SX ACROSS 9 5/8" SHOE. SET 9 5/8" RETAINER AT 5450'. SPOT ANOTHER 50 SX ONTOP OF RETIANER. 1/16/1982 Perf 4080-4098. Reed City Dolomite 1/22/1982 Perf 3979-4045. Reed City Dolomite, Dunde Perf 3671 2/1/1982 2/2/1982 Perf 3623-3668

Set Cement Retainer @3948. Squeeze with 100 SX. Spot 100 SX from 3700-340

2/10/1982



PERMIT NUMBER 34558

		omit in DUPLIC					′ ,	DEEPENING	PERM	IT NU	MBER			
JBM 1 2250	Petro. Bate	SOFOWNERS  ieum Cox  rprise D  ant, MI	p.	N PERMIT		Card	inal D ary, A	rillin,			OR(S)			
LEASE NAM	1E(S) & W	ELL NUMBER	SHOWN ON	PERMIT						RECTIO	NALL	_	LLEO	<del></del>
SURFACE L	OCATIO		SECTION		TOWNSHI		RANGE	K	1 1	VAT		E		
730		North/South)	ine and	550	(E Ft. from	ast/West)	ine of quarte	r section	co	SCO	NAME 018			
SUBSURFA Same	CE LOCA	TION	SECTION		TOWNSHI	P	RANGE		TO	WNSHI	PNAM	E		
FOOTAGES		North/South)	ine and			est/West)	ine of quart	er section	col	UNTY	NAME			
DRILLIN	5/13	_	TOTAL DE	858 Log	10845	Dry	hole				ELEVA	TION	<u> </u>	
A DAILLIN	7/31			ON AT T.D.		FT. DRLD	To_		K.B	117		R.F.	16'	
WELLCO	2/10			ng FORMAT	TION(S)		- CABLE		R.T	•		Grd. 10	991	
		CASING LINE	RS AND CE	MENTING				PERF	DRATIO	ONS				
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	(n	one ball	ed)			<u> </u>								
	GAC	SS PAY INTE	RVALS			ALL OTHE	R OIL AND	GAS SHOW	S OBSE					
FORMA	TION	OIL OR GAS	FROM	то	FORM	ATION	OIL OR GAS	DEPTH	Sam- pies	Odor	E OBS Pits	Mud Line	Gas Log	Fill Up
Non	e					SEE A	TTACHE	SHEE						
	STIMUL	ATION BY AC	ID OR FRAC	TURING	1	 Wat	ER FILL UP	(FU) OR I	OST	LIRCUL	ATIO	v (L.C		<b></b>
DATE	Interv	ral Treated	Material	s and amoun	t used		MATION	F.U. L.C.	0EP	TH	}	AMOI	JNT	
	See	attached	i sheet											
	MECHAN	IICAL LOGS, L	IST EACH T	YPE RUN		DEPTH CO	RRECTION	DEVIATI	ON SU	RVEY	PLI	GGE	BAC	ĸ
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DATE 8/11/		NAME AND				, LLIE AN	SIGNATUI		<u>'</u>					

NOTICE REPORT COMPLETE SAMPLE AND FORMATION RECORD AND DRILL STEM TEST INFORMATION ON REVERSE SIDE

#### STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES GEOLOGICAL SURVEY DIVISION

CANSING HAS COPY

			SFP	2 1	1981
WELL	PLUGGIN	IG RECO	DRD"	-	(00)

(Submit in TRIPLICATE Within 30 Days After Flusging is Completed)

PERMIT NUMBER SEP 2 3 1981 34558 FIELD NAME

COMPLETE NAME(S) AND A	DDRESS OF	WELL OWNER				
JEM Petroleum	Corp.,	2250 Enter	prise Da	r., Mt. Ple	asant, MI 4	8858
Freudenburg	M NAME(S)					WELL NUMBER
WELL LOCATION					TOWNSHIP	COUNTY
SE % NE %	NE	14 SEC. 31	T. 17N	R. 8W	Evart	Osceola
TYPE OF WELL (Oil, Gas, Dry	y Hole, etc.)			TOTAL DEPTH	FORMATION	
				108581	Trempealea	au
7/31/81 DATE PLUGGING COMPLETED 7/31/81		DEPT. REPRESENT PLUGGING	Michael Mos	PERMIT OR WITNESSED		

	CASINO	RECORD	
SIZE CASING	DEPTH SET	AMOUNT RECOVERED	SHOT OR RIPPED
13 3/8	9531		
9 5/8	5587	-	
		<del> </del>	
			····

В	RIDGES OR PL	ugs
TYPE (Brush, Stone, Cement, Mechanical, etc.)	DEPTH PLACED	SACKS OF CEMENT AND ADDITIVES
Cement	9557	150 sx
	9024	100 sx
	8115	150 sx
	7080	150 sx
	6000	KOP 400 sx

Were tools, tubing, casing, etc., lost or left in the hole before or during plugging?	XYES	□NO	If yes, give details:  953' of 13 3/8 csg and 5587'
			of 9 5/8 csg left in hole
Did a Service Company pump mud,	VIVE	CINO	If yes, give name and address: Dowell
spot cement, or set bridge plugs?	X YES	□ NO	DOMETI
Was the well plugged by a Company or			If yes, give name and address:
Contractor other than Owner or Operator?	XYES	□ NO	_ Dowell
Representatives of Owner, Operator, Company, o			no Doug Drouge
plugging:	J (	esse Adai	ms, Paul Proust
COOH. WOC preparing to si intervals.	GIH wit	th open k for Fr	ended DP to 9557; spot plugs while eudenburg 1-31A and to test uphole
111000			
			(USE REVERSE SIDE IF NEEDED)

"I state that I am authorized by said Owner or Operator to make this report; and that this report was prepared under my sup	erv
tion, and that the facts stated herein are true, correct and complete to the best of my knowledge."	

NAME AND TITLE (Typed or Printed) COMPANY NAME AND ADDRESS

Ronald J. DeHaas, Consulting Petroleum Geologis

SIGNATURE

DATE (Month, Day, Year)

#### **OPERATORS USE**

Description of Detail (cont.) or Other Supplemental Data:	
Description of Detail (cont.) of Other Supplemental Data.	
· · · · · · · · · · · · · · · · · · ·	
	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
DEP	PARTMENT USE ONLY
Supplemental Plugging Data and Site Conditions:	ATTIMETER OUR STEEL
Supplemental Flugging Data and Site Conditions.	
	22
9/24/81 all records in. Hole directiona GS approval. Snider	illy rearilled under PN34852. UK for
GS approval. Snider	
	•
	·
FINAL INSPECTIONS	S BY DEPARTMENT REPRESENTATIVES
FINAL INSPECTIONS	S BY DEPARTMENT REPRESENTATIVES  DIVISION , DATE
	DIVISION DATE

MOITUBIRTEID FILD

Permittee - Orig. & 1 copy Division Office - 2 copies Field Office - File copy Others - On request

#### STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES GEOLOGICAL SURVEY DIVISION

PERMIT TO PLUG AND ABANDON

AUG 12 19 MELO NAME

PERMIT NUMBER 34558

Wildcat

NAME AND ADDRESS OF PERMITTEE

JEM Petroleum

LEASE NAME AND WELL NO.

Fruedenburg #1-31

LOCATION (1/4 1/4 or other)

Dry

SE NE NE, 31 DATE COMPLETED

T 17NR 8W

Evart PLUGGING PERMIT REQUESTED BY & DATE

COUNTY Oscaola

TYPE OF WELL (Oil, Gas, Dry Hole, etc.)

7/30/81

MCFGPD

DATE PLUGGING WILL START 7/31/81

J. Adams 7/30/81

TOWNSHIP

PLUGGING TO BE DONE BY

LAST PRODUCTION BOPD

RWPD

COPIES MAILED TO

Cardinal #21

PERMIT MAILED TO

SECTION

JEM Petroleum Suite 235

5700 S. Quebec, Englawood, CO 80111

CASING AND CEMENTING RECORD
-----------------------------

		CASING AND CEMENTING RECORD		
CASING DIA. & WT./FT.	DEPTHS SET	CEMENT QUANTITY, TYPE, ADDITIVES	CMT. TOP.	PERFORATIONS
20"	105	DP .		
13 3/8	953	950 sx	surf	
95/8"	5589	2600 sx	surf	
	20" 1 3 3/8	CASING DIA. & WT./FY. DEPTHS SET 105 13 3/8 953	CASING DIA. & WT./FY. DEPTHS SET CEMENT QUANTITY, TYPE. ADDITIVES  13 3/8 953 950 SX	CASING DIA. & WT./FY. DEPTHS SET CEMENT QUANTITY, TYPE. ADDITIVES CMT. TOP.  13 3/8 953 950 SX SUFF

GEOLOGIC DATA; GAS AND OIL SHOWS; DRILLING AND COMPLETION DATA:

1116.0' KB TD 10858

TOPS CONFIDENTIA

#### PLUGGING REQUIREMENTS.

Plugging requirements outlined are to be executed in accordance with the provisions of Act 61, P.A. 1939, as amended, and rules and orders adopted thereunder.

Spot 150 sx cmt. 100° below top of PDC. Spot 100 sx cmt. 50° below top of Trenton.

Spot 160 sx cmt. 50° below top of Clinton.

Spot 150 sx cmt. 50' below top of A2C.

Spot 400 sx cmt. kick off plug at 6000'; Remainder of

hole to be saved for sidetrack well.

\*NOTE: BONDS CANNOT BE RELEASED UNTIL A PLUGGING IS COMPLETED, CELLAR RAT HOLE AND PITS FILLED, WELL SITE RESTORED AND RECORDS FILED, WATER WELLS MUST BE PLUGGED ACCORDING TO RULE 166 OF ACT 294 P.A. 1965, "GROUND WATER QUALITY CONTROL". It is further made a requirement of this permit that the applicant give notice to the public utilities in accordance with Act 53, P.A. 1974 C.L. 460,701 to 460,718 and comply with each of the requirements of the act.

AUTHORIZED BY (signature)

OFFICE

Cadillac D#6

DATE

8/11/8

# The State of Michigan DEPARTMENT OF NATURAL RESOURCES

GEOLOGICAL SURVEY DIVISION

Landing / MA	/
AUG 24 138! 1981	_

LEAVE BLANK	7
DEEPENING PERMIT NUMBER	1
DATE ISSUED	1

# APPLICATION

			CHAR	_	CII OTATI	ıc		FIELD NAM	
PERMIT NUMBER	34852		CHANGE WELL STATUS (SUBMIT IN QUADRUPLICATE)						IE
NAME AND ADD	JEM Petrol								
LEASE OR FARM	NAME Fruedenburg	g						WELL NUM	
WELL LOCATION		SECTION				T	OWNSHIP		COUNTY
SL:	SE NE NE,	31	۲.	77N	R.	8W	Evar	't	Osceola
		(Deepen, Plug Back, Con-	vert to In	ection o	Disposal Well,	Temporari	lly Abandon etc	.)	
APPROVAL REQU	JESTED TO		Plu	ig bac	k to test	upper	zones		
DATE DRILLING	COMPLETED	DATE LAST PRODUC	ED		LAST PRODU	CTION (A	mt/day)		
	8/13/81	~~-				OIL,	٧	VTR.,	M.C.F. GAS
WORK TO BE DO	NE BY							WILLSTAR	T (DATE)
	Cardinal #2	21					_	8/13/	81

	CASING A	ND CEMENTING	RECORD
SIZE CASING	DEPTH SET	NO. SACKS CEMENT	PERFORATIONS
20"	105	DP	
133/8"	953	950	
95/8"	5589	2600	

DESCRIBE PROPOSED WORK IN DETAIL:

FORMATION RECORD

(Formation and depth, Oil, Gas & Wtr. shows, etc.)

CONFIDENTIAL

Ran DP thru top Clinton and spot 150 sx Cl A cmt; 150 sx thru A2C. Set 95/8" cmt. retnr 54507+ in cmt after spotting 75 sx at 5550', pulled 1 stand. Closed retainer; spotted 50 sx top retnr.

Remainder of hole to be used for selectively testing potential pay zones.

The proposed work as outlined above and approved by the Supervisor or his Authorized Replication to the provision of Act 61/P.A. 1939 and for Act 326, P.A. 1937 and the rules and regular	resentative will be executed in accordance tions issued and adopted thereunder.
SIGNATURE (Well Owner Authorized Representative)	8/18/61
APPROVED BY: FIELD OF EIGHT	8/20/81

# This document paid for with State funds

#### STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES GEOLOGICAL SURVEY DIVISION

PERMIT TO PLUG AND ABANDON

PERMIT NUMBER 34852	
FIELD NAME	

AME AND ADDRESS OF PERMITTEE JEM PETROLEUM

FREUDENBURG #1-31"A"

SE NE NE,

31

10W <sub>1</sub> 17N <sub>R</sub>

TOWNSHIP Evart

COUNTY

Osceola PLUGGING PERMIT REQUESTED BY & DATE

Dry hole DATE PLUGGING WILL START 2/9/82 DATE COMPLETED 2/3/82 2/3/82 C. Lowery

SECTION

AST PRODUCTION OPO

THE DISTRIBUTION

thes - On request

rimitee -- Orig & 1 copy

vision Office - 2 copies and Office - File copy

> **BWPD** MCFGPD

DATE

PLUGGING TO BE DONE BY Dowell

FILLY MAILED TO

COPIES MAILED TO

JEM Petroleum

2250 Enterprise, Box 221 Mt. Pleasant, MI 48858

CASING AND CEMENTING RECORD							
OUE DIA	CASING DIA & WT/FT	DEPTHS SET	CEMENT QUANTITY, TYPE, ADDITIVES	CMT YOP	PERFORATIONS		
	20	103					
	133/8"	953	950	surf			
	95/8"	5589	2600	***************************************	4080-4098		
	************	e the course of the transfer of the course o			3977-4045		
				<del></del>	3623-3675		

3580-3585

GEOLOGIC DATA; GAS AND OIL SHOWS; DRILLING AND COMPLETION DATA:

CONFIDENTIAL

#### PLUGGING REQUIREMENTS.

Plugging requirements outlined are to the executed in accordance with the provisions of Act 61, P.A. 1939, as amonded, and rules and orders adopted thereunder.

Set retainer at 3950 and squeeze 100 sx cmt. Spot 100 sx cmt. at 3700'.

Cut csg off 3' below grd level & cap w/cmt & steel plate.

NOTE: BONDS CANNOT BE RELEASED UNTIL A PLUGGING IS COMPLETED, CELEAR RAT HOLE AND PITS FILLED, WELL SITE RESTORED AND RECORDS FILED. WATER WELLS MUST BE FILEGED ACCORDING TO RULE 166 OF ACT 294 P.A. 1965. GROUND WATER ODALITY CONTROL. It is further made a requirement of this permit that the applicant give notice to the public archites in accordance with Act 53, P.A. 1974 C.L. 460 701 to 460 718 and comply with each of the requirements of the act.

IMORIZED BY (signature)

OFFICE Cadillac D#6 OATE 4/20/82

1 WELL PLUGGING RECORD Form 8-7213 to be filed in TRIPLICATE within 30 days after completion

R-7229 Rev 11/77

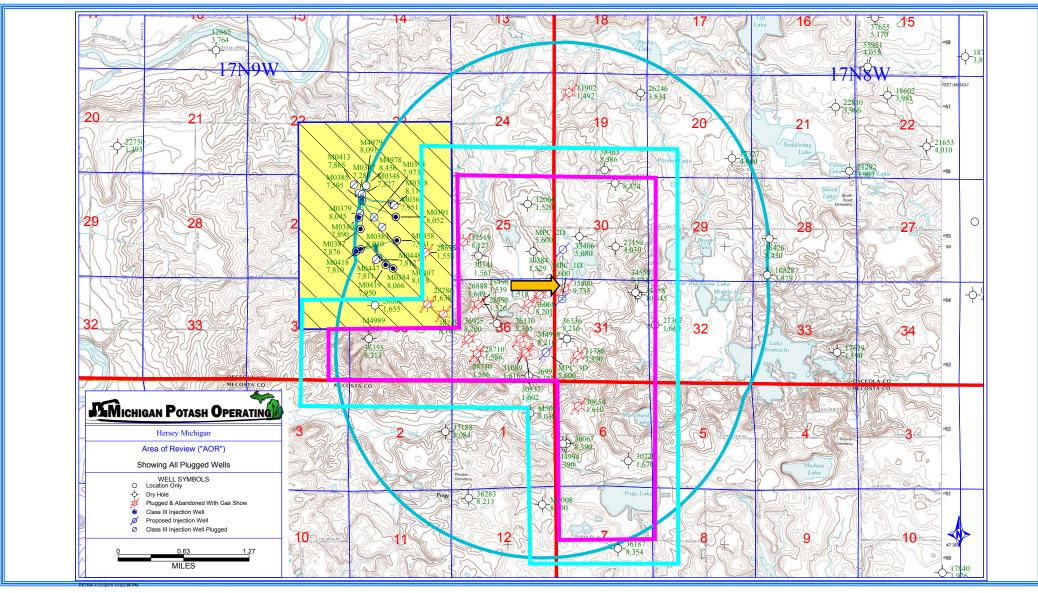


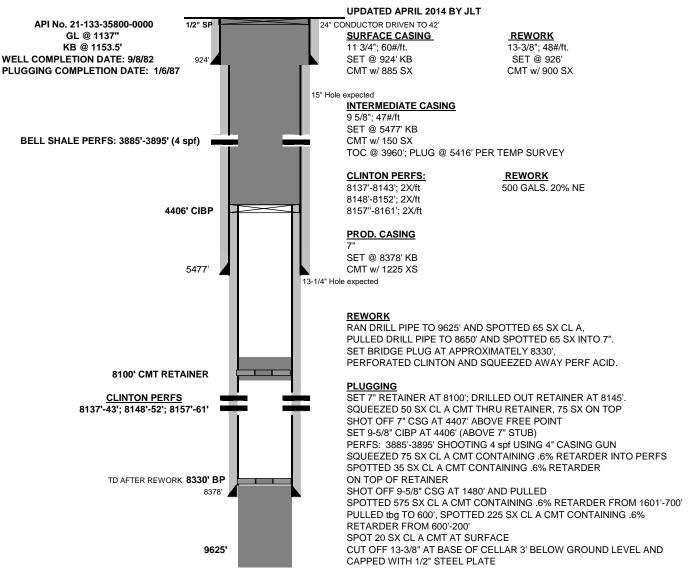
Figure B4. Map showing all plugged wells, shallow (that do not penetrate any confining horizon) or deep (that penetrate confining horzion) within the area of review. Total Depths are listed. There are several shallow Michigan Stray wells that do not penetrate the injection or confining horizon.

# Michigan Potash Operating, LLC

#### **GRAY 1-31**

# NE NW NW Sec 31 T17N R8W OSCEOLA COUNTY, MI

#### **CURRENT WELLBORE DIAGRAM**



TD @ 9769" KB/ 9755' LOG

#### **GRAY 1-31 WELL HISTORY**

DATE DESCRIPTION

6/5/1982 SPUD.

8/8/1982 DRILLING COMPLETED. FORMATION AT TD PRAIRIE DU CHIEN. TD 9769'.

11-3/4" CSG SET @ 924' w/ 885 SX CMT 9-5/8" CSG SET @ 5477' w/ 150 SX CMT 7" CSG SET @ 8378 w/ 1225 SX CMT

9/8/1982 WELL COMPLETED

8/10/1982 REWORK COMMENCED

RAN DP TO 9625' AND SPOTTED 65 SX CL A, PULLED DP TO 8650' AND SPOTTED 65 SX INTO 7"  $\,$ 

SET BRIDGE PLUG AT APPROX. 8330'

PERFORATED CLINTON AND SQUEEZED AWAY PERF ACID (500 GALS. 20% NE)

CLINTON PERFS: 8137'-8143'; 2X/ft

8137'-8143'; 2X/ft 8148'-8152'; 2X/ft 8157'-8161'; 2X/ft

9/8/82` REWORK COMPLETED. TD AFTER REWORK 8330'.

12/29/1986 PLUGGING START DATE

SET 7" RETAINER @ 8100

SQUEEZED 50 SX CL A CMT THRU RETAINER, UNSTUNG FROM RETAINER AND PLACED 75 SX ON TOP

SHOT OFF 7" CASING AT 4407' ABOVE FREE POINT

SET 9-5/8" CAST IRON BRIDGE PLUG AT 4406' ( ABOVE 7" STUB) PERFORATED 3885'-3895' SHOOT 4 spf USING A 4" CASING GUN

SQUEEZED 75 SX CL A CMT CONTAINING .6% RETARDER INTO PERFS

SPOTTED 35 SX CL A CMT CONTAINING .6% RETARDER ON TOP OF RETAINER

SHOT OFF 9-5/8" CASING AT 1480' AND PULLED SAME.

SPOTTED 575 SX CL A CMT CONTAINING .6% RETARDER FROM 1601'-700'

PULLED tbg TO 600', SPOTTED 225 SX CL A CMT CONTAININIG .6% RETARDER FROM 600'-200'

SPOT 20 SX CL A CMT AT SURFACE

CUT OFF 13-3/8" AT BASE OF CELLAR 3' BELOW GROUND LEVEL AND CAPPED WITH 1/2" STEEL PLATE

1/6/1987 PLUGGING COMPLETED.

SEP 2 3 1982

STATE OF MICHIGAN
DEPARTMENT OF NATURAL RESOURCES

LOG OF OIL, GAS, DISPOSAL OR STORAGE WELL (ACT 61)
Submit in DUPLICATE Within 30 Days after Well Completion

PERMIT NUMBER 35800	
DEEPENING PERMIT NUMBER	

								1.	_							
NAME(S) & A	DDRES	\$ 01	OWNERIS	) SHOWN O	NPERMIT		NAME & A	DORESS OF	ORI	LLING C	ONT	PACTO	P(S)			
Willmet,	Inc	•				i	T. D. Provins Drilling Company									
2250 Ent	erpr	ise	Drive			}	2113 Enterprise Drive									
Mt. Pleasant, MI 48858							Mt. Pleasant, MI 48858									
LEASE NAME(S) & WELL NUMBER SHOWN ON PERMIT												_		_	LLED	,
Grey #1-	-31										YES		NO	XX		
SURFACE LUCATION SECTION TOWNSHI					TOWNSHIE	P	RANGE			TOW	NSHIE	NAM	E			
NE NW N	J				31	1	7N	1	8	3W	}	Eva	rt			
FOOTAGES		(Nort	th/South)			(E	ast/West)	- <del></del>			cou	NTY	MAME			
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											1					
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FORMA	TION	_{0}	IL OR GAS	<del></del> -	70	FORM	ATION	OIL OR GAS	٦,	EPTH	Sam-	WHER Odor	E OBS	ERVE	D (X)	Fill
Clinton		-	Gas	8136	8174				↓		ples	1000	1 113	Line	Log.	Up
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						RODUCTION										
OIL - Bbls/	day G	RAV	ITY - OAP	COND. E	I		1	R - Bbis/day	H <sub>2</sub> S			cu. ft.	!		O DEP	
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I AM RESPO	NSIBLE	FO	R THIS REP	ORT. THE	INFORMATI		K IPLETE AN	D CORREC	r.					,		

NOTICE REPORT COMPLETE SAMPLE AND FORMATION RECORD AND DRILL STEM TEST INFORMATION ON REVERSE SIDE

SIGNATURE

NAME AND TITLE (PRINT)

William E. Booker, Geologist

DATE

R - 7210 Rev. 3/77

#### STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES SUPERVISOR OF WELLS

FEB 1 1 1983

LANSING HAS COPY

#### **WELL REWORK RECORD**

FILE IN DUPLICATE WITHIN 30 DAYS AFTER COMPLETION OF REWORK OR DEEPENING

(Replaces GS 38) FIELD NAME PERMIT NUMBER DEEPENING PERMIT NUMBER Wildcat NAME AND ADDRESS OF WELL OWNER Willmet, Inc., 2250 Enterprise Drive, Mt. Pleasant, MI

LEASE OR FARM NAME Gray COUNTY

WELL NUMBER 1-31

TOWNSHIP WELL LOCATION SECTION 0sceola R. 8W Evart NE NW NW 17N 31 TOTAL DEPTH AFTER REWORK WELL COMPLETED FOR (Oil, Gas, Gas Storage, Brine Disposal, Water

MECHANICAL LOGS RUN NO ADDITIONAL LOGS

WELL COMPLETED IN (Name Rock Formation and Zone of Completion) Clinton - (Burnt Bluff)

35800

Injection, etc.)

DATE REWORK COMMENCED DATE REWORK COMPLETED 8-10-82 9-8-82

8330

NAME AND ADDRESS OF CONTRACTOR

T & J Tank Company, P. O. Box 228, Kalkaska, MI 49646

		<del></del>	WELI	CASING RI	ECORD - BE	FORE REWORK	
Casi	ng	Cem	ent	Perfora	itions	Acid or Fracture	Perforations
Size	Depth	Sacks	Туре	From	From To Treatment Record		If plugged, how?
24"	42'						
13 3/8"	926	900					
9 5/8"	5477	150					
711	8378	1225		·			
		-					
						<del></del>	

		WELL CAS	SING RECOR	D - AFTER	REWORK	Indicate additions and changes only)			
Casing		Cement		Perforations		Acid or Fracture	Perforations		
Size	Depth	Sacks	Туре	From	То	Treatment Record	. If plugged, how?		
711	8378	1225	2x/ft	8137	43	500 gals. 20% NE			
			11	8148	52				
			11	8157	61				
						20 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			
					<u> </u>		:		

DESCRIBE REWORK OPERATIONS IN DETAIL

Ran drill pipe to 9625 and spotted 65 sx Cl A, pulled drill pipe to 8650 and spotted 65 sx into 7". Set bridge plug at approximately 8330, perforated Clinton and squeezed away perf acid.

#### GEOLOGICAL FORMATION RECORD OF DEEPENING

	1	50044	****		50014	1			
FROM	ТО	FORMA	TION (type, color,	, hardness)	FROM	то	FORMA	TION (type, colo	r, hardness)
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			· · · · · · · · · · · · · · · · · · ·						
	DAILY P	RODUCTION	TEST RECORD	) · ·	DAILY INJ	ECTION TES	T RECORD IF		WELL (OR BDV
			TEST RECORD		DAILY INJ	η		INJECTION	WELL (OR BD)
Date	Bar	rels	Pres	sure	DAILY INJ	Barrels	Pre	INJECTION V	Specific Grav
	Bar Oil	rels Water				η		INJECTION	
Date 9-82	Bar	rels Water	Pres	sure		Barrels	Pre	INJECTION Vessure	Specific Grav
	Oil 0	rels Water	Pres	sure		Barrels	Pre	INJECTION Vessure	Specific Grav
	Oil 0	rels Water	Pres	sure		Barrels	Pre	INJECTION Vessure Ending	Specific Grav
	Oil 0 1.438 MM	rels Water	Pres	sure		Barrels	Pre	INJECTION Vessure	Specific Grav
	Oil 0 1.438 MM	rels Water	Pres	sure		Barrels	Pre	INJECTION Vessure Ending	Specific Grav
	Oil 0 1.438 MM	rels Water	Pres	sure		Barrels	Pre	INJECTION Vessure	Specific Grav
	Oil 0 1.438 MM	rels Water	Pres	sure		Barrels	Pre	Ending	Specific Grav
	Oil 0 1.438 MM	rels Water	Pres	sure		Barrels	Pre	INJECTION Vessure Ending	Specific Grav
	Oil 0 1.438 MM	rels Water	Pres	sure		Barrels	Pre	Ending	Specific Grav
	Oil 0 1.438 MM	rels Water	Pres	sure		Barrels	Pre	Ending	Specific Grav
	Oil 0 1.438 MM	rels Water	Pres	sure		Barrels	Pre	Ending	Specific Grav
	Oil 0 1.438 MM	rels Water	Pres	sure		Barrels	Pre	Ending	Specific Grav
	Oil 0 1.438 MM	rels Water	Pres	sure		Barrels	Pre	Ending	Specific Grav
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	Oil 0 1.438 MM	rels Water	Pres	sure		Barrels	Pre	Ending	Specific Grav

IGNATURE (Well Guyler or Authorized Representative)

ADDRESS (if different than well owner) 1425 S. Mission Mt. Pleasant, MI 48858

DATE (Month, Day, Year) 1-20-83

DTE: IF GAS WELL, RECORD FLOW TEST UNDER "DAILY PRODUCTION TEST RECORD"

#### STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES

GEOLOGICAL SURVEY DIVISION

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DEEPENING PERMIT NUMBER
DATE ISSUED

AUG 2 3 1982

LANSING

**APPLICATION** TO

PERMIT NUMBER 35800		CHANGE WELL STATUS (SUBMIT IN QUADRUPLICATE)					
NAME AND ADDRESS OF WELL O	wner O Enterprise Drive,	Mt. Pleas	sant, MI 4889	58			
LEASE OR FARM NAME					WELL NU	1-31	
WELL LOCATION NE NN NW,	SECTION 31 T.	1 7N	я. 8W	ownship Evart,	0se	county	
APPROVAL REQUESTED TO	(Deepen, Plug Back, Convert to plug back		posel Well, Temporar te in Clintor		rtc.}		
B/8/82	DATE LAST PRODUCED	LAS	T PRODUCTION (A	mt/day)	WTR.,	M.C.F. GAS	
WORK TO BE DONE BY Halliburton	`				WILLSTA	asap	

CASING AND CEMENTING RECORD								
SIZE CASING	DEPTH SET	NO SACKS CEMENT	PERFORATIONS					
24"	42							
133/8	926	900						
95/8"	5477	150						
7"	8377	1225						

FORMATION RECORD

(Formation and depth, OH, Gas & Wtr. sows, etc.)

TOPS CONFIDENTIAL

DTD 9744 LTD 9751

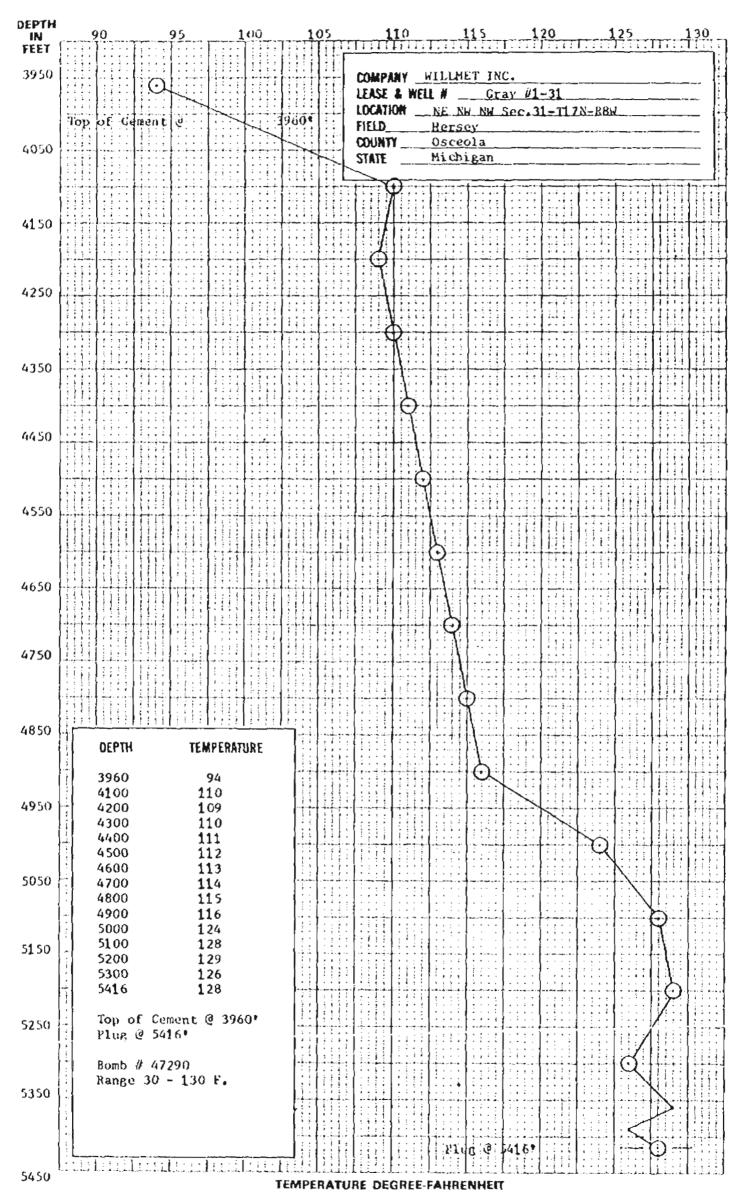
DESCRIBE PROPOSED WORK IN DETAIL:

Run DP to 9625' and spot 65 sx Cl A cmt. or equal; pull DP to 8650' and spot 65 sx cmt. into shoe of 7". Dress off cmt. Set 7" BP 8340'+. Perforate 7" and complete well in Clinton Fm.

The proposed work as outlined above and a with the provisions of Act 61, P.A. 1939 an	pproved by the Supervisor or his Authorized Representative id/or Act 326, P.A. 1937 and the rules and regulations issued	will be executed in accordance is and adopted thereunder.
SIGNATURE (Well Owner of Authorized Representative)		DATE
2 100	2	deno 17/82
APPROVED BY: Monda	Cadellac	DATE /8 /82
NOTE: WELL REWORK RECORD, Form R-7212, is to	be filled in DUPLICATE within 30 days after completion.	R 1237 3/73

#### DAR-WAY, INC. . P. O. BOX 52 . KALKASKA, MICHIGAN

#### **TEMPERATURE SURVEY**



#### STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES SUPERVISOR OF WELLS

JAN 24 1983 JAN 26 1983

WELL REWORK RECORD

FILE IN DUPLICATE WITHIN 30 DAYS AFTER COMPLETION OF REWORK OR DEEPENING HAS COMPLETED OF THE SECOND OF THE

	ft. about	ces co spy	
PERMIT NUMBER 35800 PC	DEEPENING PERMIT NUMBER	FIELD NAME Wildcat	
NAME AND ADDRESS OF WELL Willmet, Inc., 225	L OWNER O Enterprise Drive, Mt. Ple	easant, MI 48858	
LEASE OR FARM NAME Gray			WELL NUMBER 1-31
WELL LOCATION NE NW NW	SECTION 31 T. 17	TOWNSHIP 7N R. 8W Evart	COUNTY Osceola
WELL COMPLETED FOR (Oil, Injection, etc.) Gas	Sas, Gas Storage, Brine Disposal, Water	TOTAL DEPTH AFTER REWORK 8330	MECHANICAL LOGS RUN NO ADDITIONAL LOGS
WELL COMPLETED IN (Name I Clinton - (Burnt B	lock Formation and Zone of Completion) luff)	DATE REWORK COMMENCED 8-10-82	DATE REWORK COMPLETED 9-8-82
NAME AND ADDRESS OF CON T & J Tank Compan	TRACTOR y, P. O. Box 228, Kalkaska,	MI 49646	

	<u> </u>	Cam	Cement		rtions	Acid or Fracture	Perforations
Size	Depth	Sacks	Туре	From	To	Trestment Record	If plugged, how?
24"	421						
3 3/8"	926	900					
9 5/8"	5477	150					
7"	8378	1225					
				}	.		

	WELL CASING RECORD — AFTER REWORK (Indicate additions and changes only)										
Ca	Casing		ment	Perfora	rtions	Acid or Fracture	Perforations				
Size	Depth	Sacks	Тура	From	To	Treatment Record	If plugged, how?				
7"	8378	1225	2x/ft	8137	43	500 gals. 20% NE					
	T	1	11	8148	52						
			11	8157	61						
		1									
		1		1		·					

DESCRIBE REWORK OPERATIONS IN DETAIL

Ran drill pipe to 9625 and spotted 65 sx Cl A, pulled drill pipe to 8650 and spotted 65 sx into 7". Set bridge plug at approximately 8330, perforated Clinton and squeezed away perf acid.

# GEOLOGICAL FORMATION RECORD OF DEEPENING

FROM	то	EORMA	ATION (type, color,	harringer)	FROM	ТО	FORMA	TION (type, color,	hardney
FROM		7011	Thora trype, com	, the Orient	1110	<del> '*</del>	1 011111	trioti trype, color,	145011539
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	DAILY PI	RODUCTION	TEST RECORD	, 	DAILY INJECTION TEST RECORD IF INJECTION WELL (OR				
	Ban	rels	Pres	sure		Barrels	Pr	essure	Specific Gravity
Dete	Oil	Water	Tubing	Casing	Date	of Water	Beginning	Ending	of Water
9-82	0	0							
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ADDRESS (If different than well owner) 1425 S. Mission

DATE (Month, Day, Year) 1-20-83

NOTE: IF GAS WELL, RECORD FLOW TEST UNDER "DAILY PRODUCTION TEST RECORD"

SIGNATURE (Well Owner or Authorized Representative)

STATE OF MICHIGAN TYPE OR PRINT REQUEST FOR TRANSFER OF A PERMIT PERMIT NO WELL TYPE 35800 Dry\_Hole SUBMIT 4 COPIES TO: Department of Natural Resources Geological Survey Division FIELD NAME Lansing, Michigan 48909 APR 2 6 1988 Hersey-Clinton WELL NAME AND NUMBER Filing for change of ownership of well is required in accordance with DAct Gray 1-31 61, P.A. 1939 and DAct 315 P.A. 1969, as amended, and Administrative WELL LOCATION Rules promulgated thereunder. NF 8W 1/4 NW 1/4 NW 1/4 SECTION LOWNSHIP TRANSFER OF A PERMIT FROM: Evart Osceola NAME(S) OF SELLING OWNERS PPG Oil & Gas Company, Inc. ADDRESS. Number and Street - City or Town - State - Zin Code -- Telephone One Jackson Square, Suite 600, Jackson, MI 49201 (517) 782-8145 All operating rights are discharged by. Representative(s) PPG Oil & Gas Company, Inc., Richard M. Rompala ELIGIBILITY FOR PERMITS IS CONDITIONED UPON COMPLIANCE WITH THE STATUTES, RULES AND ORDERS OF THE DEPARTMENT OF NATURAL RESOURCES. PERMITS WILL NOT BE GRANTED TO PERSONS NOT IN COMPLIANCE. NON-SUBMISSION AND/OR FALSIFICATION OF THIS INFORMATION MAY RESULT IN FINES AND/OR IMPRISONMENT. TRANSFER OF A PERMIT TO: NAME(S) OF ACQUIRING OWNER(S) Marathon Oil Company ADDRESS Number and Street -- City or Town -- State -- Zip Corte One Jackson Square, Suite 600, Jackson, MI 49201 (517) 782-8145 (We) (I) have acquired the well under this permit and assume full responsibility for the drilling, operation, and abandonment in conformity with the law, regulations and orders. BONDING CO. SAFECO Insurance Company of America SURETY BOND: SINGLE WELL ATTACHED BOND NUMBER 5194219 (X) ON FILE X BLANKET All operating rights and responsibilities are assumed by Owner(s) Representative(s) Donaed A Hall 3/28/88 Marathon Oil Company, Donald R. Hall FOR DEPARTMENT OF NATURAL RESOURCES USE ONLY DISTRIBUTION BY DNR Lansing Acquiring Owner l J. Szyzkow 6/20/FP ☐ Selling Owner

Field

# **BADILLAC HAS COPY**

								<b>%</b> :		
	<ul> <li>DEPARTMENT</li> </ul>	E OF MICHIGAN OF NATURAL RESOU	ACES		PERMIT NO		TYPE OF	WELL		
	GEOLOGIC	CAL SURVEY DIVISION BOX 30028	· ·		35800 FIELD/FACILITY NAME		gas	<del></del>		
٠.٠	LANSING	G, MICHIGAN 48909								
USE APPROPE	RIATE BLOCKS FOR	ITEMS NOT LISTED	SUBMIT ATTACH	MENTS.	Hersey Evar	<u> </u>				
REQUIRED B	BY AUTHORITY OF	÷:			WELL NAME & NUMBER					
ACT 61. F	P.A. 1939, AS AMEN	DED ACT 315, 1	P.A. 1969, AS AN	MENDED	Gray #1-31					
ION-SUBMISSION AND/OR FALSIFICATION OF THIS INFORMATION MAY RESULT					WELL LOCATION					
	DOR IMPRISONMEN		JHMAHUN MAY F	RESULT	NE 14 01 NW 14 01 N	W 14	Section, COUNTY	31 T 17N R 8W		
PECOPO	OF WELL:	X DI LIGGING	☐ REWO	RK	Evart		Osce	ola		
MAIL THREE	COPIES TO THE	DISTRICT OFFICE WIT			TOTAL DEPTH		FORMATIO			
	OF PLUGGING OR				9755' (Log)		Buri	nt Bluff		
NAME AND AD	DRESS OF WELL OWN	IER			PLUGGING/REWORK STARTING DATE	PLUGGING/REWORK COMPLETION DATE				
PPG	Oil & Gas,	Inc.			12/29/86 1/6/83			/87		
0ne	Jackson Squ	iare			TOTAL DEPTH AFTER REWORK MEC			AL LOGS RUN		
	te 600				O-abandoned well	N.A.				
Jac	kson, Michig	an 49201			WELL COMPLETED FOR	FORMATION AND ZONE				
					P & A					
				r		1				
CASING SIZE	WHERE SET	AMOUNT RECOVERED	<del></del>	†	TYPE OF BRIDGES OR PLUGS	DEPT	H PLACED	SACKS OF CEMENT & ADDITIVES		
13 3/8	926	none	NA (1.000		rations 3885-3895	1		gueeze 75 sx		
9 5/8	5477	1480	shot/1480	9 5/8	" cmt. retainer	387	/5	'thru ret into pe		
				ļ		<u> </u>		35 sx cmt on top		
7"	8377		shot/4407		cast iron plug	440				
	<u> </u>	eads on)		7" cm	it. retainer	810		50 sx class A		
								thru retain 75 cla		
WERE TOOLS. AFTER PLUGGII	TUBING, CASING, ETC. NG? IF YES, GIVE DET	LOST OR LEFT IN THE	HOLE BEFORE O	R	OID A SERVICE COMPANY PUMP MUI			OR SET BRIDGE PLUGS? ON		
see aho	ve casing re		Halliburton Serv	rices	•					
366 000	ve casing re	Covery			PO Box 519					
WELL PLUGGIN	G-REWORK CONTRACT	TOR AND ADDRESS			Kalkaska Michig	<del>lan 4</del>	9646			
	Officeronic Continue	TOTAL PRODUCTION			Terminate of readonts in the ob-					

	WELL CASING RECORD — BEFORE REWORK										
Cas	sing		Cement	Per	1orations	Acid or Fracture	Perforations				
Size	Depth	Sacks	Туре	From	То	Treatment Record	If plugged, how?				
13 3/8"	926	685	reg poz	8137	8140	500 gal HCL					
	·	200	class A	8137	8143	500 gal HCl	retainer at 8100				
9 5/8"	5477	1250	class A	8148	8152		<pre>drilled out</pre>				
7"	8377	1100	special H	8157	8161		retainer at 814				

		WELL CASI	NG RECORE	- AFTER	REWORK	Indicate additions and changes o	nly)	
C	asing	Cement Perforations			ations	Acid or Fracture	Perforations	
Size	Depth	Sacks	Туре	From	To	Treatment Record	If plugged, how?	
9 5/8	5477 to	1480						
7"	8377 to	4407						
	T							

DESCRIBE IN DETAIL HOW WELL WAS PLUGGED OR REWORKED.

see attached sheet

Well Tech. Inc.

Mt. Pleasant, Michigan 48858

2255 Parkway

GEOLOGICAL SURVEY

Timothy L. Baker

NAME(S) OF DNR REPRESENTATIVE WHO

Jack Snider

MAR 2 6 1991

Permits & Bonding Unit

ISSUED PERMIT

WITNESSED PLUGGING

	DAILY PRODUCTION TEST RECORD						DAILY INJECTION TEST RECORD:   INJECTION WELL   BRINE DISPOSAL WEL				
	Oil	Water	Gas	Pres			8bis. Water		essure	Specific Gravity	
Date	(Bbs)	(Bbis.)	(MCF)	Tubing	Casing	Date	or MCF Gas	Beginning	Ending	of Water	
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	1					<u> </u>					
TIAL TES	TING AFT	ER REV	•	Disposal: Injec Brine: Original			ng Rate)	(Act 315,	P.A. 1969, as	amended)	
				Owner or Operated herein are	ator to make				repared under knowledge.''	my supervisi	
ME AND TITL	E (Typed or F	Printed)		roduction E		SIGNATURE	A Allie		DATE 1/27	/97	
	CANNOT BE				•	R, RAT AND MO			. SITE LEVELED A		
FOR	DNR US	E ONLY	- PINA	AL INSPECTIO	NS BY DEP	ARTMENT C	F NATURAL	RESOURCE	S REPRESEN	TATIVES	
		SIGNAT					DIVISION			DATE	
				ng Elever Com							

Describe in detail how well was plugged or reworked.

- 1. Set 7" retainer at 8100'.
- 2. Squeezed 50 sx class A cement through retainer, unstung from retainer and placed 75 sx on top.
- 3. Shot off 7" casing at 4407' above free point.
- 4. Set 9 5/8" cast iron bridge plug at 4406 (above 7" stub).
- 5. Perforated 3885-3895 shooting 4 s.p.f. using a 4" casing gun.
- 6. Squeezed 75 sx class A cmt. containing .6% retarder into perforations.
- 7. Spotted 35 sx class A cement containing .6% retarder on top of retainer.
- 8. Shot off 9 5/8" casing at 1480 and pulled same.
- 9. Spotted 575 sx class A cement containing .6% retarder from 1601 to 700'.
- 10. Pulled tgb to 600', spotted 225 sx class A cement containing .6% retarder from 600' to 200'.
- 11. Spot 20 sx class A cement at surface.
- 12. Cut off 13 3/8 at base of cellar 8' below ground level and capped with  $\frac{1}{2}$ " steel plate.

GEOLOGICAL SURVEY

MAR 2 6 1991

Permits & Bonding Unit

STATE OF MICHIGAN
DEPARTMENT OF NATURAL RESOURCES
GEOLOGICAL SURVEY DIVISION
BOX 30023 PERMIT NO. TYPE OF WELL 35800 Gas LANSING, MICHIGAN 48909 HAME AND ADDRESS OF WELL OWNER [] APPROVAL MAILED RESURED BY PUTHORITY OF: PPG Oil & Gas 🔯 ATT EN PLA 1989, AS AMENDED 🕒 ACT 315, P.A. 1969, AS AMENDED Suite 1052 APPLICATION TO (Submit 4 copies): 1 Jackson Sq. Jackson, MI 49204 CHANGE WELL STATUS EX PLUG AND ABANDON NOTHEREN ES ON AND OR FALSIFICATION OF THIS INFORMATION MAY RESULT IN FINES FIELDIFACILITY NAME CHANCE OF WELL STATUS REQUESTED FOR Hersey Clinton Pool PLUG BACK [ EXTEND PLUGGING (T.A.) ☐ PERFORATE WELL NO. WELL NAME CONVERT TO INJECTION OR DISPOSAL WELL | OTHER Grav WELL LOCATION ACIDITE (815 CNLY) FRACTURE (315 ONLY) 1/4 Section 31 NE . 1/4 of NW 14 of NW **R 8M** LIST PRODUCTION INCESTION AND TYPE OF FLUID COUNTY TOWNSHIP - Arrows ser may & recoon pressure) Evart Osceola DATE DRILLING COMPLETED DATE LAST PRODUCED/UTILIZED 10 mcf/month 8/8/82 10/84 STARTING DATE CEJIMA JAVORGRA 🔀 175 EACO EE CT NEUM will notify 12/29/86 CASING AND CEMENTING RECORD CUSTIG COLL & WILFT. CEMENT QUANTITY, TYPE, ADDITIVES CMT. TOP PERFORATIONS DEPTHS SET 113/4" 924 885 circl 8137-43 95/8" 5477 8148-52 150 4900 8378 1225 8157-61 circl FDPMATION RECORD Garmation and dayon, oil, gas and water shows, etc.); NIA 7992 KB 1153.5 **CLINT 8064** BOD 610 CABOTHD 8194 MARSH 1572 SLM JAY TRENTON 8965 TL 3314 GLENWOOD 9460 DD 3898 PDC 9556 RCD 3978 LTD 9755 DRSZ 4550 RICH 4765 BB 5262 BI 5426 DETAL PROPOSED PROCEDURES: Set 51" cmt. rtnr. at 8100'. Pump 50 sx cmt. thru perfs. Close retnr. Leave 75 sx on top. FP 7" 5000'+. Set 95/8" BP at 4950' or top 7" stub. FP & pull 95/8" csg. RIH w/tubg. circl. w/10.4 mud and stabilize hole. Spot 125 sx at 4550'; 125 sx at 3900'; 125 sx at 3325'; 125 sx at 1650'; 150 sx at 975'; 20 THE SOUTH ACTION FRANCISCO PRINCIPLE ACTION OF THE PRI sx on top. Cut 113/4" 3' below grade & cap w/1/2" steel plate. DATE STAG JAYORYYA TERMINATION DATE \_Cadillac \_\_\_1.2/23/86\_.

RED OF MELL PLUCCIAS OR REMORA IPA 7200/4) ARE TO BE FILED WITHIN 30 DAYS OF COMPLETION.

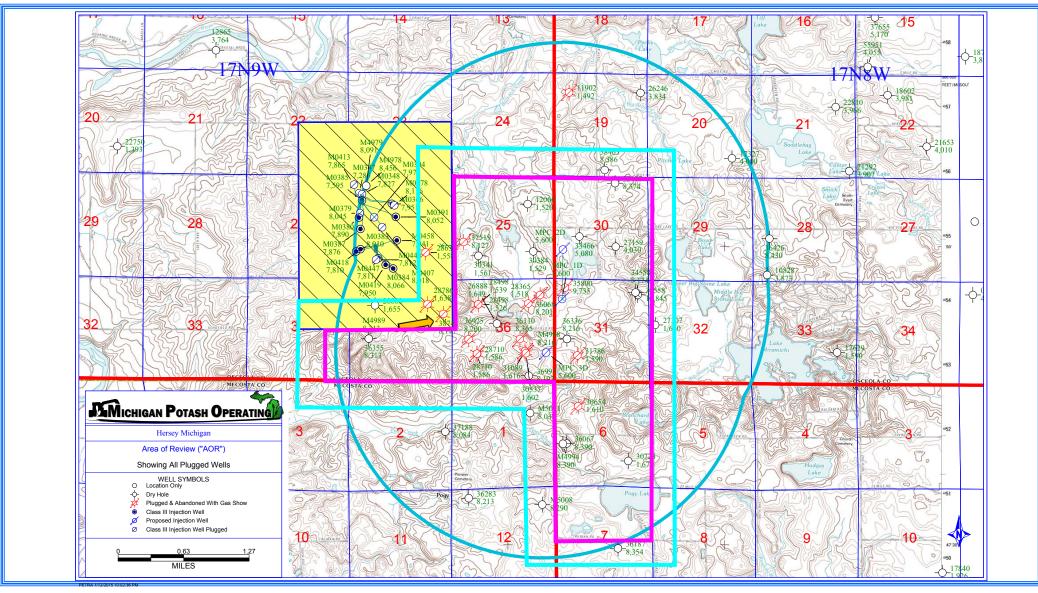
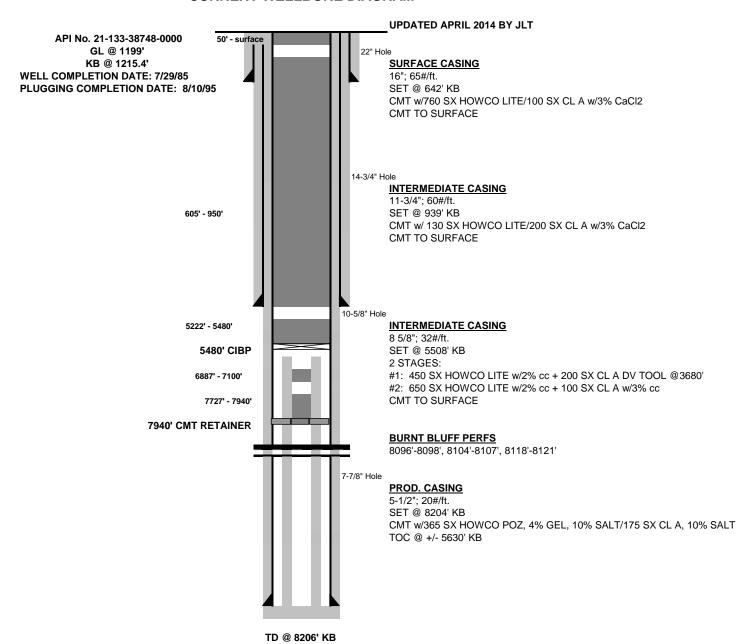


Figure B4. Map showing all plugged wells, shallow (that do not penetrate any confining horizon) or deep (that penetrate confining horzion) within the area of review. Total Depths are listed. There are several shallow Michigan Stray wells that do not penetrate the injection or confining horizon.

#### **GREIN 1-35**

# NE SE NE Sec 35 T17N R9W OSCEOLA COUNTY, MI

#### **CURRENT WELLBORE DIAGRAM**



#### **GREIN 1-35 WELL HISTORY**

	GREIN 1-35 WELL HISTORY
<u>DATE</u> 6/5/1985	DESCRIPTION SPUD.
7/27/1985	PERFORATED 19 HOLES, 4/FT: 8096'-8098', 8104'-8107', 8118'-8121'
7/29/1985	WELL COMPLETED. FORMATION AT TD CABOT HEAD. PRODUCTING FM BURNT BLUFF.  16" CSG SETAT 642'; 760 SX HOWCO LITE/100 SX CL A w/3% CaCl2  11-3/4" SET AT 939'; 130 SX HOWCO LITE/200 SX CL A w/3% CaCl2  8-5/8" SET AT 5508'; 2 STAGES: #1 450 SX HOWCO LITE w/2% cc + 200 SX CL A DV TOOL  @ 3680', #2 650 SX HOWCO LITE w/2% cc + 100 SX CL A w/3% cc  5-1/2" SET AT 8204'; 365 SX HOWCO POS, 4% GEL, 10% SALT/175 SC CL A, 10% SALT
8/7/1995	PLUGGING STARTED RU A-1 CASING SERVICE AND PULL REMAINDER OF 5-1/2" CASING. ND BOP'S AND TUBING SPOOL, INSTALL 8-5/8" CAST IRON BRIDGE PLUG ON TUBING AND START IN HOLE, NU BOP'S AND SPOOL, TIH AND SET RETAINER AT 5480', STING OUT OF RETAINER AND BALANCE A 75 SX CL A CEMENT PLUG ON TOP OF RETAINER. TOOH LAYING DOWN TUBING TO 4800', WHERE 140 BBLS OF DRILLING MUD WAS SPOTTED IN HOLE, TUBING WAS THEN PULLED TO 950' WHERE A 100 SX CL A CEMENT PLUG WAS SPOTTED TUBING WAS PULLED FROM HOLE AND CASING WAS FILLED TO SURFACE WITH 15 SX CL A CEMENT. BOP'S AND HEAD WERE REMOVED FROM WELL, RD HALLIBURTON AND SD FOR NIGHT CMT PLUG SPOTTED @ 7940' - TOP OF PLUG @ 7727'; 25 SX CL H CMT PLUG SPOTTED @ 5480' - TOP OF PLUG @ 6887'; 25 SX CL A CMT PLUG SPOTTED @ 950' - TOP OF PLUG @ 605'; 100 SX CL A CMT PLUG SPOTTED @ 50' = TOP OF PLUG @ SURFACE; 15 SX CL A

PLUGGING COMPLETION DATE

8/10/1995

#### STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES

SEP 0 3 1985

PERMIT NUMBER

LOG OF OIL, GAS, DISPOSAL OR STORAGE WELL (ACT 61)

38748

DEEPENING PERMIT NUMBER

Submit in DUPLICATE Within 30 Days after Well Completion NAME(S) & ADDRESS OF OWNER(S) SHOWN ON PERMIT NAME & ADDRESS OF DRILLING CONTRACTOR(S) PPG OIL & GAS COMPANY INDRIL, INC. 2258 Enterprise Drive PO Box 668 Mt. Pleasant, MI 48858 Mt. Pleasant, MI 48858 LEASE NAME(S) & WELL NUMBER SHOWN ON PERMIT DIRECTIONALLY DRILLED GREIN #1-35 YES NO X SURFACE LOCATION SECTION TOWNSHIP TOWNSHIP NAME RANGE NE'Z SE'Z NE'Z 9W 35 17N Hersey FOOTAGES (North/South) (East/West) COUNTY NAME 460 833 Ft. from South Ft. from East Osceola Line and Line of quarter section SUBSURFACE LOCATION SECTION TOWNSHIP TOWNSHIP NAME (North/South) (East/West) COUNTY NAME \_\_ Ft. from\_ Line and Line of quarter section TOTAL DEPTH OF WELL DRILLING BEGUN TYPE WELL Driller 8206 Log 8197 Gas 06/05/85 **ELEVATIONS** D DRILLING COMPLETED FORMATION AT T.O. FT. DRLD. - ROTARY TOOLS K.B. B.F. А 06/25/85 Cabot Head From 0 To 8206 1214.2 1215.4 Т WELL COMPLETED PRODUCING FORMATION(S) FT. DRLD. - CABLE TOOLS 07/29/85 Burnt Bluff 1199 CASING, CASING LINERS AND CEMENTING PERFORATIONS SIZE WHERE SET CEMENT Ft. Pulled OPEN NUMBER DATE INTERVAL PERFORATED 16" 642' HOLES YES NO 11-3/4" 9391 130 Lite, 200 ¢1A 7/27/85 19 <u>\$096-98, 8104-07, 8118+21</u> 8-5/8" 55081 1st stage 450 Lite, 200 ClA 4/ft DV Tool 3680' 2nd stage 650 lite, 100 5-1/2" 82041 365 POZ, 175 CIA **GROSS PAY INTERVALS** ALL OTHER OIL AND GAS SHOWS OBSERVED OR LOGGED FORMATION OIL OR GAS FROM WHERE OBSERVED (X) TO  $\alpha$ u FORMATION DEPTH OR GAS Burnt Bluff 8045 8122 Mud Gas Gas Antrim Gas 3150 Х Reed City Dole 4150 X 17 Sour Zone 4650 X STIMULATION BY ACID OR FRACTURING WATER FILL UP (F.U.) OR LOST CIRCULATION (L.C.) (X) FORMATION Interval Treated Materials and amount used F.U. L.C. DEPTH AMOUNT DATE 7/27/85 8096-8121 500 gal. 20% FeHC1 NONE 7/28/85 500 gal. 20% FeHC1 8096-8121 MECHANICAL LOGS, LIST EACH TYPE RUN DEPTH CORRECTION DEVIATION SURVEY PLUGGED BACK LOG TYPES LOGGED INTERVALS DEPTH CORRECT'N **RUN AT** DEGREES YES NO DEPTH Brand LDT-CNL-GR 100-8195 2300 Schlumberger 11/2 DLL-MLL **Birdwell** 7000-8195 1/4 4500 6300 1/2 11/2 7900 PRODUCTION TEST DATA OIL - Bols/day GRAVITY - OAPI COND. Bols/day GAS - MCF/day WATER - Bbls/day H2S - Grains/100 cu. ft. B.H.P. AND DEPTH 500 I AM RESPONSIBLE FOR THIS REPORT, THE INFORMATION IS COMPLETE AND CORRECT. DATE NAME AND TITLE (PRINT) SIGNATURE William E. Booker, Geologist 8/13/85

•	STATE OF DEPARTMENT OF NA GEOLOGICAL SU BOX : LANSING, MIC	ATURAL RESOURCES JRVEY DIVISION 30028	PERMIT NO. TYPE OF WELL  38748 Gas								
X ACT 61, F	AUTHORITY OF: A. 1939, AS AMENDED ON TO (Submit 4)	NAME AND ADDRESS OF WELL OWNER APPROVAL MAILED  Marathon Oil Company 1231 E. Mosherville Road Jonesville, M1 49250									
☐ CHANGE	WELL STATUS	X PLUG AND A	BANDON		,	-					
_	N AND/OR FALSIFICATION OF		5:5: 0:5:00:00:00								
	ELL STATUS REQUESTED FO	R:	FIELD/FACILITY NAT								
1 —	ACK		WELL NAME				WELL NO				
		FRACTURE (31	WELL LOCATION NE . 1/4 Of	SE ¼ of	NF 1/4 (	Section 3!	—— 5 т	<u>#1-3</u> 17N		9W	
1	ION/INJECTION AND TYPE (	OF FLUID		YOWNSHIP Hersey	3E % 01		DUNTY	Osceo		<u> </u>	
	& injection pressure)			DATE DRILLING CO	MPLETED	D.A	ATE LAST PRO			D	
30 MCFD				06-28-85		- cr		Activ			
1	DONE BY: <u> </u>	NLED				ST	ARTING DATE	A.S.A	l.P.		
			CASING AND CE	MENTING RECO	RD						
HOLE. DIA.	CASING DIA. & WT./FT.	DEPTHS SET	CEA	MENT QUANTITY, TYP	E. ADDITIVES		CMT. TO	)P	PER	FORATI	ONS
22"	16". 65#	6421			lass "A" w/3% Ca		Surfa Surfa			_	
ŀ	11 3/4 <sup>H</sup> , 60# 8 5/8 <sup>H</sup> , 32#	939 <i>′</i> 5508 <i>′</i>	# 130 SX 110WG	O (TEP/200 SX C	Class "A" w/3% C	actz	Surfa				
	5 1/24, 20#	82041	365 sx How	o Poz, 4% gel,	56301	8096-98			31		
See Exhi	bit "A"		2nd stage	e: 650 sx Howco	lite w/2% cc + lite w/2% cc +					680′.	
		GEOLOGI	CAL SURVE	<b>Y</b>						•	
DETAIL PROPOS	ED PROCEDURES:		0 8 1994							-	
See Atta	chment	Permits &	Bonding Uni	t							
DNR ADDITIONAL	. REQUIREMENTS:										
NAME/SIGNATUR	E (Authorized Representative) iels, Jr. Michigan P	roduction Superi	ntendent $\sqrt{}$	M Da	mel f		DATE	2/2	 221	94	
APPROVED BY D	NR L.	21. 11	OFFICE AND I	AF	PROVAL DATA	ino a		INATION			

#### GREIN 1-35 Section 35-T17N-R9W Osceola County, Michigan

#### P & A PROCEDURE

#### WELL DATA:

16" 65# csg @ 642'

11-3/4" 60# csg @ 939'

8-5/8" 32# csg @ 5508'

5-1/2" 20# csg @ 8204'

2-7/8" 6.5# tbg @ 7372'

Existing perfs @ 8096-8121' OA

#### PROCEDURE:

- Notify DNR in Cadillac at (616)775-9727.
- 2. Kill well with 10.2 ppg SAB (State Approved Brine). ND tree. NU BOP's.
- TOH with 2-7/8" tubing and packer.
- 4. RU wireline company. Run gauge ring and junk basket to 8080'. Set cement retainer @ 8075'. TIH with tubing and sting into cement retainer. Establish injection and pump 50 sx of Class "H" cement. Displace 25 sx into formation, pull out of cement retainer and spot 25 sx above retainer. TOH to 7100' and reverse circulate to clean tubing.
- 5. With tubing at 7100', spot a 25 sx Class "H" cement plug at 7100-6900' (Across top of A2 Carbonate @ 7009'). TOH with tubing.
- 6. RU wireline company. Run freepoint and cut 5-1/2" casing at freepoint. TOH with 5-1/2" casing. (Monitor for NORM and follow casing handling guidelines if NORM is encountered.)
- 7. Set 8-5/8" CIBP just above the top of 5-1/2" casing stub or at 5500', whichever is deeper.
- 8. TIH with 2-7/8" tubing to CIBP. Spot a 75 sx Class "A" cement plug above CIBP. TOH to 950' and reverse circulate to clean tubing.
- 9. With tubing at 950', spot a 100 sx Class "A" cement plug at 950-600' (Across 11-3/4" and 16" casing shoes). TOH with tubing.
- 10. Spot a 15 sx Class "A" cement plug at 50' surface. Cut casing off 4' below ground level. Weld marker plate over top of casing.

	1	AP	2-15-94	
c.	A.	Paul	Bon	
		PEL	2	
P.	E.	Legg	<u></u>	 



#### Michigan Department of Natural Resourcest Geological Survey Division

Permit Number 38748 Well Name & Number GREIN #1-35

					-						A		
RECORD	OF WELL	PLUGGING	OR REWO	RK	-	Турес	of Wall G	as CAD	Field Name H	lersey Unit	EP 5 10		
REQUIRED BY AUTHORITY OF: ACT 61, PA 1939, as amended or ACT 315, PA 1989, as amended. Non-submission and/or falsification of this							Type of Well Gas Defield Name Hersey Unit 5						
information may result in fines and/or imprisonment.							Date Plugging / Rework Started B/7/95 Date Plugging / Rework Completed 8/10/95						
Name and Address of Well OWNER MARATHON OIL COMPANY 4445 E. MOSHERVILLE ROAD CADILLAC HAS CONTROL OF C							n <del>ad</del> dition onnell	al sheets a & Scully	, 26761 L	•		49245	
Indicate Ope □ PLUGGING	Mineral Well	\$	Name Status		mployee is ael J. M			proving Chang 3/3/94	je of Well				
□ Tools, tubi	ing, etc. left i	n hole - describe	in Daily Chro	nology.	(	□ Well	logs run	- list types	and depthe i	n Deily Chrono	dogy.		
		For	WELL PLUC	GING Only	(HOL	E CO	NDITION	S AFTER	PLUGGING)				
		CASING							PLUG	S			
Casing Size	Where Set	Amount Cas Pulled	Cut/Per	· II	Bott	Dep tom	o <b>th</b> Yop	Type of	Bridge or Plug	Cement Plug type, # sx, a	gs: Cement and additives	Tagged Top? Y/N	
16"	542'	4'	4'		79	40'	7940'	Cemen	t Retainer			Υ	
11-3/4"	939.	4'	4'		79	40'	7727'	Cemen	t	25 sx Cla	ss "H"	N	
8-5/8"	5508'	4'	4'		710	00,	6889'	Cemen	t	25 sx Cla	ss "H"	N	
5-1/2"	8204	5500'	5500			80'	5480'	Cast Ire	on BP			Υ	
					54	80'	5222'	Cemen	t	75 sx Cla	ss 'A'	N	
					950'		605'	Cemen	Cement		ass "A"	N_	
					50		Surf	Comen	<u> </u>	15 cv Cla			
Check □ if N	ORM material	l was reinserted	into wellbore	. If so, desci	m edin	aterial	s fully in	the Daily C	Chronology se	ction on back	of this form.		
REWOR	K WAS TO:	CONVERTOR REMEDIA	CK: D Nev	IDON sposal Well & Test C v Production	C Rep	Proc air Ca e □	· · ·	Storment Sal S	Redrill -	nhanced Rec Other Enhanced Re	•	Other Other	
		<u> </u>		ell Casing	Reco		•	Rework					
Cas		Ceme			Ţ		rations			or Fracture sent Record			
Size	Depth	Sacks	Туре	From	+	To	it p	lugged, HO	- 1 NAS		<del></del>		
	<del> </del>	GEOLO	SICAL SU	RVEY	+		_+_						
L		STP	0 7 1995								<del></del>		
		sina Record -			te add	enoiti	and chan	ges only: c	omplete Test	Record on ne	xt page)		
Cas	ing	Cem	ent . <del>O to corroro</del>	ن Unit		Perfo	rations	<del></del>		Acid (	or Fracture		
Size	Depth	Sacks	Тура	From	<b>_</b>	То	If p	Hogged, Hoggen	SW?		ent Record		
<b> </b>				<u> </u>	-							<del></del>	
					<del> </del>								
	8EFORE	REWORK						AFT	ER REWORK				
Total Dapth Formation/Zone Well Complete					7	Total C	epth		Formation/Z	ัดกอ	Well Comple	ted For	
					سألسيخ	<del></del>							

Date	Oi (Bb		Water (alds)	Gas (MCF)	Ca Size Depth	sing	Date Or MCF Gas Beginning Ending			Specific Gravity of Water	
	·										
		7. *;	`								
J 744 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4											<u> </u>
									<b></b>		
								<del></del>			
						********	- 7 - 7				
DAILY CHRO	NOLOG	Y - De	escribe in deta	ail the daily of	hronology of	rework / plug	gg lig, i <b>nclude</b>	wob turk eyeb	n. Describe	exceptions t	o issued plugging
Date		Norra	ative - also inc	clude dates pi	its filled, sur	face was rest	tored, etc U	lse additional pa	ges as neede	d.	
Notice: Under sections 18a and 18b of Act 61 PA 1939, as amended, and section 23 of Act 315 PA 1969, as amended, a well owner has								mer has			
true, accurate	ON "I st and co	ate the	at I am authorite to the best	rized by said of my knowle	Owner. This	s report was i	prepared unde	er my supervisio	n and directio		stated herein are
NAME and TI C. A. Paul	TLE for SON -	Proc	r (printed or d duction En	gineer	Aut	honzed Signa	Charl	let fam	<u></u>	Date	7-1-95
NOTE: Bonds	NOTE: Bonds cannot be terminated until plugging is completed, celler, ret and mouse holes, and pits filled, site leveled and cleaned and records filed										

Mail completed original and three copies to the appropriate DNR District Office within 30 days after completion of plugging or rework.

DAILY INJECTION RECORD O Injection Well O Brine Disposal

DAILY PRODUCTION TEST RECORD

# DAILY REPORT CENTRAL PRODUCTION REGION COMPANY OPERATED August 11, 1995

#### WORKOVER/RECOMPLETION

Hersey Unit Grein #1-35 Osceola County, MI AFE NO: OPERATOR: Marathon Oil RIG: McConnell & Scully

MOC/WI:

MIRU: 08/04/95

COST TO DATE: \$

DAY: 4

AFE AMOUNT:

PRESENT OPERATION: Rigging down, capping well.

REMARKS: 08/10/95: RU A-1 casing service and pull remainder of 5-1/2" casing. ND BOP's and tubing spool, install 8-5/8" cast iron bridge plug on tubing and start in hole, NU BOP's and spool, TIH and set retainer at 5480', sting out of retainer and balance a 75 sx Class A cement plug on top of retainer. TOOH laying down tubing to 4800', where 140 bbls of drilling mud was spotted in hole, tubing was then pulled to 950' where a 100 sx Class A cement plug was spotted. Tubing was pulled from hole and casing was filled to surface with 15 sx Class A cement. BOP's and head were removed from well. RD Halliburton and SD for night.

from well, RD Halliburton and SD for night.

Cement plug spotted @ 7940' - top of plug @ 7727'

Cement plug spotted @ 7100' - top of plug @ 6887'

Cement plug spotted @ 5480' - top of plug @ 5222'

Cement plug spotted @ 950' - top of plug @ 605'

Cement plug spotted @ 50' = top of plug @ surface

LANSING

STATE OF MICHIGAN
DEPARTMENT OF NATURAL RESOURCES
GEOLOGICAL SURVEY DIVISION
BOX 30028

,	GEOLOGICAL SUI	RVEY DIVISION		PERMIT NO		TYPE OF WELL				
	BOX 3 LANSING, MICH			38748		FEB 9 . m				
DEALIDED BY A	SITUADITY AC.			NAME AND ADDRESS OF V	WELL OWNER	APPROVAL MAKE	1992日			
REQUIRED BY A	1939, AS AMENDED	ACT 315, P.A. 19	969, AS AMENDED	Marathon 011 P.O. Box 68	Company	FB 1 5 1992	4m4 620			
APPLICATIO	N TO (Submit 4	copies):		Jonesville,	MI 49250	oben.	15 TE SE			
CHANGE W	ELL STATUS	PLUG AND A	BANDON				**			
NON-SUBMISSION /	AND/OR FALSIFICATION OF	THIS INFORMATION MA	LY RESULT IN FINES							
	STATUS REQUESTED FOR			Hersey Unit						
ſ	X EXTEND PLUG		X  PERFORATE	WELL NAME		WEL	L NO			
1	TO INJECTION OR D			Grein			1-35			
C ACIDIZE (3	15 ONLY) [	FRACTURE (315	S ONLY)	NE 4 of SE	4 of NE 1/4	Section 35	T 17N R 9W			
	N/INJECTION AND TYPE O	F FLUID		TOWNSHIP		COUNTY				
	injection pressure)			Hersey		Osceola				
50 MCF	D of Gas			DATE DRILLING COMPLETED  06-28-85	C	DATE LAST PRODU	ly Producing			
WORK TO HE DON	YE BY. T APPROVAL MA	ILED				STARTING DATE				
To be Det	ermined									
ļ			CASING AND CE	MENTING RECORD			1			
	61, 65#	642		lite/100 sx Cl		CMT TOP	PERFORATIONS			
)	1-3/4", 60#	9391		lite/200 sx Cl	~~~~~					
	-5/8", 32#			o lite w/2% CaC						
7-7/8" 5	-1/2", 20#	8204'	365 sx Howco	poz, 4% gel, l	0% salt/		8096-98			
FORMATION RECO	RD (Formation and depth, o	it, gas and water shows	s. etc.): 1	75 sx Class A,	10% salt		8104-07			
							8118-21			
See Attach	ment									
						• •				
ROT"										
DETAIL PROPOSED	PROCEDURES:									
RUSC. Mak	e GR run to 81 at 4 spf. RIH			ru-tubing perfo Once on depth,						
	ORDINATE	Ve chonea								
		27 874								
	Permits 8	, Bonding Un	nit							
DNR ADDITIONAL R	REQUIREMENTS:									
	(Authorized Representative)			m Dan	441	DATE	13/92			
	els, Jr., Mich			<del></del>						
APPROVED BY DNF	Wir and	11. W. As 1	OFFICE	APPROVA	EB 11 19	92 TERMIN	ATION DATE			
	1 now	1. Calletter			-1 10					

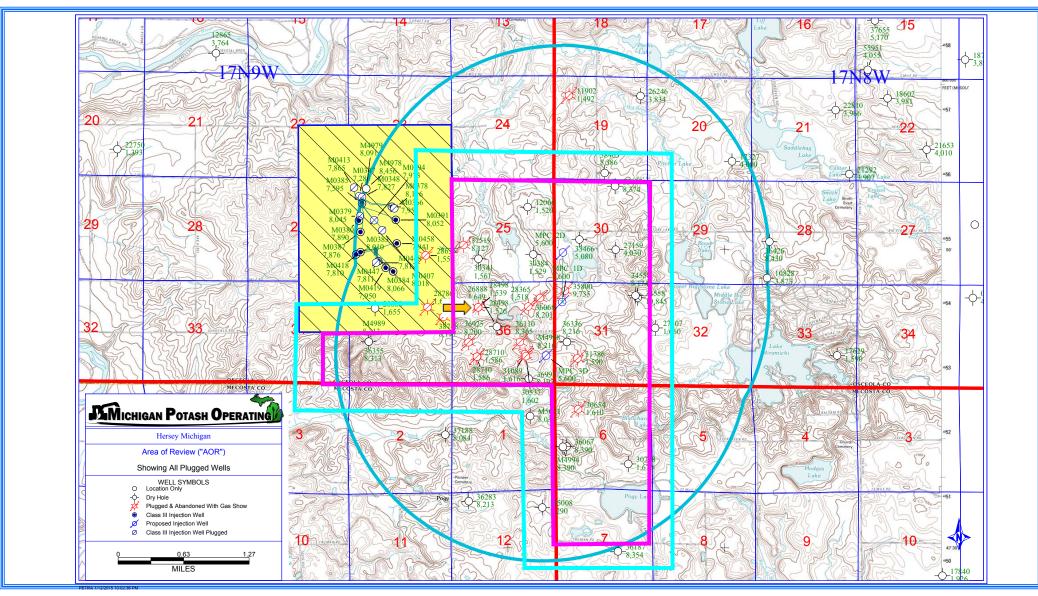
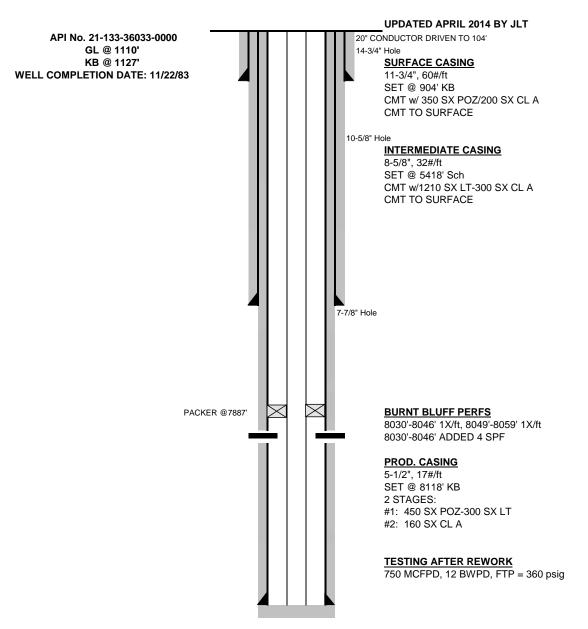


Figure B4. Map showing all plugged wells, shallow (that do not penetrate any confining horizon) or deep (that penetrate confining horzion) within the area of review. Total Depths are listed. There are several shallow Michigan Stray wells that do not penetrate the injection or confining horizon.

#### **GREIN 2-36**

# SE NW NW Sec 36 T17N R9W OSCEOLA COUNTY, MI

#### **CURRENT WELLBORE DIAGRAM**



TD @ 8119' KB TD AFTER REWORK @ 8141' KB

#### **GREIN 2-36 WELL HISTORY**

DATE	DESCRIPTION
7/18/1983	SPUD.
11/22/1983	WELL COMPLETED. FORMATION AT TD CABOT HEAD. PRODUCTING FM BURNT BLUFF. 20" SET AT 104', DP 11-3/4" SET AT 904'; 350 SX POZ/200 SX CL A 8-5/8" SET AT 5418'; 1210 SX LT-300 SX CL A 5-1/2" SET AT 8118'; 2 STAGES: #1 425 SX POZ-300 SX LT, #2 160 SX CL A
11/19/1983	PERFORATED 1X/FT: 8030'-8046', 8049'-8059'
11/20/1983	500 GAL. 28% HCI FROM 8030'-8059'
10/7/1991	REWORK STARTING DATE MIRU. SET PLUG IN tbg. ND/NU BOP'S. TESTED BOP'S. RETRIEVED PLUG. KILLED WELL w/10 BBLS SAB. TOH w/2-7/8" tbg. & PACKER. MADE BIT & SCRAPER RUN. TIH w/TCP GUSN, PKR. & 2-3/8" tbg. CORRELATED GUNS w/GR TOOL. SET PKR. AT 7,887'. VERIFIED DEPTH w/GR. FILLED BACKSIDE w/9PPG SAB. ND/NU. TESTED TREE & FLOWLINES. PERFORATED WELL FROM 8,030'-8046' AT 4 SPF. SWABBED WELL & CLEARED SALT RESTRICTIONS. FLOW WELL TO FACILITIES. RDMO.
10/28/1991	REWORK COMPLETION DATE

STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES DEC 1 6 1983

PERMIT	NUMBER	
 	36033	

	86033		
DEEPENING	PERMIT	NUMBER	

Submit in DUPLICATE Within 30 Days after Well Completion  NAME & ADDRESS OF OWNER(S) SHOWN ON PERMIT  PPG 011 & Gas Co., Inc.  2258 Enterprise Drive  Mt. Pleasant, MI 48858  LEASE NAME(S) & WELL NUMBER SHOWN ON PERMIT  Grein #2-36  SURFACE LOCATION  SE NW NW  36  17N  PHOURS DRILLING CONTRACTOR(S)  T. D. Provins Drilling  2113 Enterprise Drive  Mt. Pleasant, MI 48858  DIRECTIONALLY DRILLED  YES NO VX  NO VX  FOOTAGES (North/South)  460' Ft. from North Line and 835' Ft. from West Line of quarter section  SUBSURFACE LOCATION  SECTION  TOWNSHIP  RANGE  TOWNSHIP NAME  FOOTAGES (North/South)  (East/West)  FOOTAGES (North/South)  (East/West)  Footages (North/South)  Ft. from Line of quarter section  Line of quarter section  COUNTY NAME  TOWNSHIP NAME  Ft. from Line of quarter section  COUNTY NAME  Footages (North/South)  Ft. from Line of quarter section  Line of quarter section
PPG 0il & Gas Co., Inc.  2258 Enterprise Drive Mt. Pleasant, MI 48858  LEASE NAME(S) & WELL NUMBER SHOWN ON PERMIT Grein #2-36  SURFACE LOCATION SE NW NW  36  17N  PRANGE TOWNSHIP ANGE Ft. from North Line and 835' SUBSURFACE LOCATION SECTION SECTION TOWNSHIP AGO' Ft. from North Line and 835' SUBSURFACE LOCATION SECTION TOWNSHIP RANGE TOWNSHIP NAME OSCEDIa SUBSURFACE LOCATION SECTION TOWNSHIP RANGE TOWNSHIP NAME OSCEDIa TOWNSHIP NAME TOWNSHIP NAME COUNTY NAME OSCEDIa
2258 Enterprise Drive Mt. Pleasant, MI 48858  LEASE NAME(S) & WELL NUMBER SHOWN ON PERMIT Grein #2-36  SURFACE LOCATION SE NW NW  SE NW NW  SE NW NW  SE NO TOWNSHIP A60' Ft. from North Line and 835' Ft. from West Line of quarter section  SUBSURFACE LOCATION SECTION TOWNSHIP West Line of quarter section TOWNSHIP RANGE TOWNSHIP NAME OSCEOLA TOWNSHIP RANGE TOWNSHIP NAME OSCEOLA TOWNSHIP FOOTAGES (North/South)  (East/West)  COUNTY NAME COUNTY NAME OSCEOLA TOWNSHIP RANGE TOWNSHIP NAME
2258 Enterprise Drive Mt. Pleasant, MI 48858  LEASE NAME(S) & WELL NUMBER SHOWN ON PERMIT Grein #2-36  SURFACE LOCATION SE NW NW SE NO WAY  FOOTAGES (North/South) A60' Ft. from North Line and 835' Ft. from West Line of quarter section  SUBSURFACE LOCATION SECTION SUBSURFACE LOCATION SECTION SUBSURFACE LOCATION SECTION SECTION TOWNSHIP RANGE TOWNSHIP NAME OSCEDIA TOWNSHIP NAME  COUNTY NAME OSCEDIA TOWNSHIP NAME  FOOTAGES (North/South) COUNTY NAME OSCEDIA
Mt. Pleasant, MI 48858  LEASE NAME(S) & WELL NUMBER SHOWN ON PERMIT  Grein #2-36  SURFACE LOCATION SECTION SECTION TOWNSHIP ANGE FOOTAGES (North/South) 460' Ft. from North Line and 835' Ft. from West Line of quarter section SUBSURFACE LOCATION SECTION TOWNSHIP RANGE TOWNSHIP NAME OSCEOLA  SUBSURFACE LOCATION SECTION TOWNSHIP RANGE TOWNSHIP NAME COUNTY NAME OSCEOLA TOWNSHIP NAME COUNTY NAME OSCEOLA TOWNSHIP NAME FOOTAGES (North/South) COUNTY NAME
CEASE NAME(S) & WELL NUMBER SHOWN ON PERMIT   Grein #2-36
SURFACE LOCATION   SECTION   TOWNSHIP   RANGE   TOWNSHIP NAME   SE NW NW   36   17N   9W   Hersey    FOOTAGES (North/South)   (East/West)   COUNTY NAME   Osceola    SUBSURFACE LOCATION   SECTION   TOWNSHIP   RANGE   TOWNSHIP NAME    FOOTAGES (North/South)   (East/West)   COUNTY NAME   COUNTY NAM
SURFACE LOCATION SECTION TOWNSHIP RANGE TOWNSHIP NAME SE NW NW 36 17N 9W Hersey  FOOTAGES (North/South) (East/West) COUNTY NAME 460' Ft. from North Line and 835' Ft. from West Line of quarter section Osceola  SUBSURFACE LOCATION SECTION TOWNSHIP RANGE TOWNSHIP NAME  FOOTAGES (North/South) (East/West) COUNTY NAME
SE NW NW  36 17N  FOOTAGES (North/South)  460' Ft. from North Line and 835' Ft. from West Line of quarter section  SUBSURFACE LOCATION SECTION TOWNSHIP RANGE  FOOTAGES (North/South)  (East/West)  COUNTY NAME  COUNTY NAME  COUNTY NAME
460 Ft. from North Line and 835 Ft. from West Line of quarter section Osceola  SUBSURFACE LOCATION SECTION TOWNSHIP RANGE TOWNSHIP NAME  FOOTAGES (North/South) (East/West) COUNTY NAME
SUBSURFACE LOCATION SECTION TOWNSHIP RANGE TOWNSHIP NAME  FOOTAGES (North/South) (East/West) COUNTY NAME
Ft. from Line and Ft. from Line of quarter section
- · · · · · · · · · · · · · · · · · · ·
DRILLING BEGUN TOTAL DEPTH OF WELL TYPE WELL
7-18-83 Driller 8119 Log 8118 Gas ELEVATIONS
A B-12-83 Cabot Head From 0 to 8119 1127 1126
1 0 12 03
WELL COMPLETED PRODUCING FORMATION(S) FT. DRLD CABLE TOOLS R.T. Grd.
11-22-83 From To
CASING, CASING LINERS AND CEMENTING PERFORATIONS
SIZE WHERE SET CEMENT Ft. Pulled DATE NUMBER INTERVAL PERFORATED OPEN
20" 104' DP DATE HOLES INTERVAL PERFORATED YES NO
11 3/4 904' 350 poz/200 C1 A 11-19-83 26x 8030-46 1x/ft XX
8 5/8 5418' Sch   1210 sx 1t-300 sx Cl A   8049-59 lx/ft   XX
5 1/2 8118 425 sx poz-300 lt
160 C1 A
GROSS PAY INTERVALS ALL OTHER OIL AND GAS SHOWS OBSERVED OR LOGGED
FORMATION OIL OR GAS FROM TO OIL WHERE OBSERVED (X)
TURNIA DUN TURL UR GASTERUM I TUTT I TURL I UIL I I WILLIE COSENVEU (A)
FORMATION CO. CAS DERTH Same Law Mud Gas Fil
Burnt Bluff Gas 8130 8170 FORMATION OR GAS DEPTH Samples Odor Pits Mud Gas Fill Up
Burnt Bluff Gas 8130 8170 FORMATION OR GAS DEPTH Samples Odor Pils Mud Gas Fil Up Sunbury Gas 2600 X
Burnt Bluff         Gas         8130         8170         FORMATION         OR GAS         DEPTH         Samples         Odor ples         Mud Line         Gas         Fill           Sunbury         Gas         2600         X         X           Antrim         Gas         3100         X         X
Burnt Bluff         Gas         8130         8170         FORMATION         OR GAS         DEPTH Ples         Samples Odor Pits         Mud Line Log. Up         Gas Log. Up           Sunbury         Gas         2600         X         X           Antrim         Gas         3100         X
Burnt Bluff   Gas   8130   8170   FORMATION   OR GAS   DEPTH   Samples   Odor   Pils   Mud   Cas   Cog.   Up
Burnt Bluff         Gas         8130         8170         FORMATION         OR GAS         DEPTH Ples         Samples Ples         Odor Pits         Mud Line         Gas Log.         Fill Up           Sunbury         Gas         2600         X
Burnt Bluff         Gas         8130         8170         FORMATION         OR GAS         DEPTH Ples         Samples Ples         Odor Pits         Mud Line         Gas Log.         Fill Up           Sunbury         Gas         2600         X
Burnt Bluff         Gas         8130         8170         FORMATION         OR GAS         DEPTH Ples         Samples Ples         Odor Pits         Mud Line         Gas Log.         Fill Up           Sunbury         Gas         2600         X
Burnt Bluff         Gas         8130         8170         FORMATION         OR GAS         DEPTH Ples         Samples Ples         Odor Pits         Mud Line         Gas Log.         Fill Up           Sunbury         Gas         2600         X
Burnt Bluff         Gas         8130         8170         FORMATION         OR GAS         DEPTH Ples         Samples Ples         Odor Pits         Mud Line         Gas Log.         Fill Up           Sunbury         Gas         2600         X
Burnt Bluff         Gas         8130         8170         FORMATION         OR GAS         DEPTH Ples         Samples Ples         Odor Pits         Mud Line         Gas Log.         Fill Up           Sunbury         Gas         2600         X
Burnt Bluff Gas 8130 8170 FORMATION OR GAS DEPTH Samples Odor Pits Mide Gas Fill Gas 2600 Sunbury Gas 2600 X X Antrim Gas 3100 X X Sour Zone Gas 4600 X X Sour Zone Gas 4600 X X STIMULATION BY ACID OR FRACTURING WATER FILL UP (F.U.) OR LOST CIRCULATION (L.C.) (X)  DATE Interval Treated Materials and amount used FORMATION F.U. L.C. DEPTH AMOUNT 11-20-83 8030-59 500 gal. 28% HCl None MECHANICAL LOGS, LIST EACH TYPE RUN DEPTH CORRECTION DEVIATION SURVEY PLUGGED BACK
Burnt Bluff Gas 8130 8170 FORMATION OR GAS DEPTH Sam- Odor Pits Mud Gas Edg. Up  Sunbury Gas 2600 X  Antrim Gas 3100 X  Sour Zone Gas 4600 X  STIMULATION BY ACID OR FRACTURING WATER FILL UP (F.U.) OR LOST CIRCULATION (L.C.) (X)  DATE Intervel Treated Materials and amount used FORMATION F.U. L.C. DEPTH AMOUNT  11-20-83 8030-59 500 ga1. 28% HCl None  MECHANICAL LOGS, LIST EACH TYPE RUN DEPTH CORRECTION DEVIATION SURVEY PLUGGED BACK  Brand (XI LOG TYPES LOGGED INTERVALS DEPTH CORRECTION RUN AT DEGREES YES NO DEPTH
Burnt Bluff Gas 8130 8170 FORMATION OR GAS DEPTH Samples Odor Pits Mide Gas Fill Gas 2600 Sunbury Gas 2600 X X Antrim Gas 3100 X X Sour Zone Gas 4600 X X Sour Zone Gas 4600 X X STIMULATION BY ACID OR FRACTURING WATER FILL UP (F.U.) OR LOST CIRCULATION (L.C.) (X)  DATE Interval Treated Materials and amount used FORMATION F.U. L.C. DEPTH AMOUNT 11-20-83 8030-59 500 gal. 28% HCl None MECHANICAL LOGS, LIST EACH TYPE RUN DEPTH CORRECTION DEVIATION SURVEY PLUGGED BACK

PRO	DUCT	CLON	TEST	DATA

6600

10

OIL - Bbls/day	GRAVITY - OAPI	COND. Bbls/day	GAS - MCF/dey 1,400	WATER Bbis/day	H <sub>2</sub> S - Grains/100 cu. ft.	B.H.P. AND DEPTH
<u></u>					<u> </u>	

I AM RESPONSIBLE FOR THIS REPORT, THE INFORMATION IS COMPLETE AND CORRECT.

Dual-Micro

NAME AND TITLE (PRINT)
WILLIAM E. Booker SIGNATURE DATE 9/13/83

STATE OF MICHIGAN	TYPE OR PRINT					
REQUEST FOR TRANSFER OF A PERMIT	PERMIT NO WELL TYPE					
UBMIT 4 COPIES TO: Department of Natural Resources	36033 Gas					
Geological Survey Division	FIELD NAME					
Box 30028	Hersey-Clinton					
Lansing, Michigan 48909	WELL NAME AND NUMBER					
iling for change of ownership of well is required in accordance with Act	Grein 2-36					
11, P.A. 1939 and DAct 3l5 P.A. 1969, as amended, and Administrative	WELL ECCATION					
lules promulgated thereunder.	SE 1/4 NW 1/4 NW 1/4 SECTION 36 T 17N R 9W					
	TOWNSHIP COUNTY					
TRANSFER OF A PERMIT FROM:	Hersey Osceola					
NAME(S) OF SELLING OWNER(S)	1 Hersey Osceola					
PPG Oil & Gas Co., Inc.						
ADDRESS. Number and Street — City or Town — State — Zin Code — Telephone						
One Jackson Square, Suite 600, Jackson, MI 49	201 (517) 782-8145					
All operating rights are discharged by:	201 (317) 702-0143					
Owner(s) Representative(s)	County seeled					
On series (Streets)	Signiture(s) Date(s)					
PPG Oil & Gas Co., Inc., Mr. Donald R. Hall	Danne R 6 12/14/87					
rra off a das co., fric., Fr. Dorlata K. Hall	Januar 1 12/17/101					
·						
ELIGIBILITY FOR PERMITS IS CONDITIONED UPON COMPLIANCE WIT						
NATURAL RESOURCES. PERMITS WILL NOT BE GRANTED TO PERSO	ONS NOT IN COMPLIANCE.					
MON CHEMICCION AND /DO FAI CITICATION OF THIS INCOD	MATION HAY DEGIS T IN CINES AND OR HARMONE					
NON-SUBMISSION AND/OR FALSIFICATION OF THIS INFOR	MATION MAY RESULT IN FINES AND/OR IMPRISONMENT,					
TRANSFER OF	A PERMIT TO:					
NAMEIS) OF ACQUIRING OWNER(S)						
Marathon Oil Company						
ADDRESS Number and Street City or Town State Zip Code Teleptione	-					
One Jackson Square, Suite 600, Jackson, MI 49	9201 (517) 782-8145					
(We) (I) have acquired the well under this permit and assume full respons						
law, regulations and orders.	to the drining, operation, and abandonment in comorning with the					
law, regulations and orders.						
CHOSTA DONO. TO CHOICE MICH. TO ATTACHED SONDING	SAFECO Insurance Company of America					
SURETY BOND: SINGLE WELL ATTACHED BONDING	C104010					
🕅 BLANKET 🤼 ON FILE BOND N	UMBER 3134213					
All operating rights and responsibilities are assumed by						
Owner(s) Representative(s)	Signature(s) Date(s)					
	$\int_{-\infty}^{\infty} \int_{-\infty}^{\infty}					
Marathon Oil Company, Mr. David W. Hoopman	David W/ Hoopman 12/16/87					
EOD DEDARTMENT OF MATUR	DAL DECOMPOSE LICE ONLY					
FOR DEPARTMENT OF NATUR	HAL RESOURCES USE UNLY					
	<b>*.A**</b>					
	DISTRIBUTION BY ONR					
	<b>△</b> Lonsing					
	☐ Acquiring Owner					
APPROVED Signature	Selling Owner					
APPROVED	Cole Pield					

Same Land Land

STATE OF MICHIGAN
DEPARTMENT OF NATURAL RESOURCES
GEOLOGICAL SURVEY DIVISION
BOX 30028
LANSING, MICHIGAN 48909

USE APPROPRIATE BLOCKS. FOR ITEMS NOT LISTED SUBMIT ATTACHMENTS. REQUIRED BY AUTHORITY OF:

X ACT 61, P.A. 1939, AS AMENDED ACT 315, P.A. 1969, AS AMENDED

NON-SLIBMISSION AND/OR FALSIFICATION OF THIS INFORMATION MAY RESULT IN FINES AND/OR IMPRISONMENT.

RECORD OF WELL: PLUGGING X REWORK
(MAIL THREE COPIES TO THE DISTRICT OFFICE WITHIN 30 DAYS AFTER
COMPLETION OF PLUGGING OR REWORK)

Marathon Oil Company 1231 E. Mosherville Rd., P.O. Box 68 Jonesville, MI 49250

NAME AND ADDRESS OF WELL OWNER

PERMIT NO 36033	TYPE OF WELL Gas No.				
FIELD/FACILITY NAME  Hersey - Clinton	Gas NOV 1 4 1991				
well name & number Grein 2-36					
WELL LOCATION  SE 14 of NW 14 of NW 1 TOWNSHIP  Hersey	Va Section 36 T1/N R 9W COUNTY Osceola				
TOTAL DEPTH 8,141'	FORMATION Clinton-Burnt Bluff				
PLUGGING/REWORK STARTING DATE 10/07/91	PLUGGING/REWORK COMPLETION DATE 10/28/91				
TOTAL DEPTH AFTER REWORK 8,141	MECHANICAL LOGS RUN				
WELL COMPLETED FOR Gas	FORMATION AND ZONE Clinton-Burnt Bluff				

CASING SIZE	WHERE SET	AMOUNT RECOVERED	SHOT OR RIPPED	TYPE OF BRIDGES OR PLUGS	DEPTH PLACED	SACKS OF CEMENT & ADDITIVE
1			1			

WERE TOOLS, TUBING, CASING, ETC. LOST OR LEFT IN THE HOLE BEFORE OR AFTER PLUGGING? IF YES, GIVE DETAILS.	DID A SERVICE COMPANY PUMP MUD. SPOT CEMENT. OR SET BRIDGE PLUGS? IF YES, GIVE NAME AND ADDRESS				
WELL PLUGGING/REWORK CONTRACTOR AND ADDRESS	PERMITEE'S PLUGGING WITNESS				
	NAME(S) OF DNR REPRESENTATIVE WHO	SSUED PERMIT WITNESSED PLUGGING			

WELL CASING RECORD — BEFORE REWORK									
Casi	ing	Cement		Perfora	ations	Acid or Fracture	Perforations		
Size	Depth	Sacks	Type	From	То	Treatment Record	If plugged, how?		
			· · · · · · · · · · · · · · · · · · ·						
	<del>+</del>								

		WELL CASIN	G RECOR	D - AFTER	REWORK	(Indicate additions and changes only	()
Casing Cement		Perfo	rations	Acid or Fracture	Perforations		
Size	Depth	Sacks	Туре	From	То	Treatment Record	If plugged, how?
5-1/2"	8,141			8,030	8,046		
				(Added 4	spf)	GEOLOGICAL SUR	VEY
						NOV 1.8 1991	
						Permits & Bonding	

DESCRIBE IN DETAIL HOW WELL WAS PLUGGED OR REWORKED.

MIRU. Set plug in tbg. ND/NU BOP's. Tested BOP's. Retrieved plug. Killed well w/10 bbls. SAB. TOH w/2-7/8" tbg. & packer. Made bit & scraper run. TIH w/TCP guns, pkr. & 2-3/8" tbg. Correlated guns w/GR tool. Set pkr. at 7,887'. Verified depth w/GR. Filled backside w/9 ppg SAB. ND/NU. Tested tree & flowlines. Perforated well from 8,030 - 5,046' at 4 spf. Swabbed well & cleared salt restrictions. Flow well to facilities. RDMO.

DAILY PRODUCTION TEST RECORD						DAILY IN	ECTION TES			JECTION WELL RINE DISPOSAL WELL	
	Oil	Water	Gas	Pressure			Bbls Water	Pre	ssure	Specific Gravity	
Date	{Bbls}	(Bbls.)	(MCF)		Casing	Date	or MCF Gas	Beginning	Ending	of Water	
10/29/91	0	29	750	320		<del></del>					
10/30/91	0	12	725	360							
10/31/91	0	12	725	360					<del></del>		
11/01/91	0	12	750	360 380	}						
11/02/91	0	9	700 700	360						+	
11/03/91	0	8	700	360			<b></b>			<del></del>	
11/04/91 11/05/91	0	6	700	370						<del> </del>	
11/05/91	0	7	700	370						<del> </del>	
11/00/91			700								
	<del>  </del>										
<b></b> -			~								
										<u> </u>	
										ļ	
			(E	Disposal: Injection Brine: Original Flui 360 psig.			ng Rate)	(Act 315, P	P.A. 1969, as	amended)	
and direction	l am auth	at the fa	y said O	Iwner or Operator led herein are true		his report; a and compl	ete to the b	est of my ki	nowledge."	my supervision	
	iels, J	r., MI		ction Supt.	CD 05:11		1 Don			111/01	
RECORDS FILE	D. 			LUGGING IS COMPLET							
FUR	חמא חפו	SIGNATI		AL INSPECTIONS	DT DEPA	KIMENT O		HESOURCES			
					<b></b>		DIVISION			DATE	

	STATE OF DEPARTMENT OF NI GEOLOGICAL S BOX LANSING, MIC	PERMIT NO TYPE OF WELL GO GAS GAS 199							
	CANSING, MIC	CUIOXIA +0363		NAME AND ADDRESS OF WELL OWNER () APPROVAL MAILED 1991					707
4.7	AUTHORITY OF: PA. 1939, AS AMENDED	Marathor	n Oil Company		TOWNE MANICED	V	<i>7</i> /		
	ION TO (Submit 4			P.O. Box					
X CHANGE	WELL STATUS	C DUIN AND A	BANDON	Jonesvil	lle, MI 49250	0			
	MEEL STRIUS IN AND/OR FALSIFICATION OF			}					
AND/OR IMPRIS	ONMENT			FIELD/FACILITY N	NAME				
CHANGE OF W	ELL STATUS REQUESTED FO	OR.		Hersey-(	Clinton				
<u> </u>	ACK 🗋 EXTEND PLU		M PERFORATE	WELL NAME			1	L NO	
CONVER.	T TO INJECTION OR	DISPOSAL WELL	OTHER	Grein				-36	
& ACIDIZE	(315 ONLY)	FRACTURE (31	5 ONLY)	SE . 1/4 of		¼ Sec	ction 36	T 17N	R 9W
i	(ION/INJECTION AND TYPE y & injection pressure)	OF FLUID		township Hersey		COUN	ory Sceola		_
750 MCFI	o, 3 BWPD			DATE DRILLING 08/12/83			ust produc		
WORK TO BE	DONE BY APPROVAL METERMINED	AILED				STAR	TING DATE		0
10 30 30			CACING AND CE	MENTING DEC	CORD				
HOLE DIA	CASING DIA & WT /FT	DEPTHS SET	CASING AND CE	MENT QUANTITY, T			CMT TOP	PERI	ORATIONS
	20"	104'	DP	ien gomen.	Tre. Apprives	<del></del>			ONA HORS
15"	11-3/4"	904'	350 sx POZ/	200 sx Cla	ass A		<del></del>		
10-5/8"	8-5/8"	54181	1210 sx Lite	e/300 sx 0	Class A				
7-7/8''	5-1/2"	8141'		300 sx Lit	e/160 sx Clas	ss A		8030-4	
FORMATION RE	CORD (Formation and depth,	•						8049-5	59 <b>'</b>
Sunbury	<u>Dep</u> 260		Shows						
Antrim	310		Gas Gas						
Sour Zo			Gas				4		
Burnt B			Gas		GEOL	OGICA	AL SUR	AFA	
ļ							30		
[						AUG 2	1991 وسي		
ł					Permi	ts & E	Bonding	Unit	
DETAIL PROPOS	SED PROCEDURES:								
MIRU.	Shut in well.	Fill 2-7/8"	tbg w/Burnt H	Bluff form	ation water t	o kil	l well.	Set p	lug
in hang	er. ND tree.	NU BOPE. Ci	rculate hole	w/9.0 ppg	SAB. TOH w/	2-7/8	" tbg an	d BHA.	
TIH W/T	CP guns and 2-3	78" tbg. Se	t pkr. Test	backside	to 500 psig.	Re-p	erforate	well	
	30-8046' @ 4 sp lons of 15% Fe					e uns. MO.	atistact	ory, p	ump
/30 gai	Louis of 15% re	acid w/addic	ives. Open w	verr to br	oddetion. KD	110.			
	₹ O T								
DNR ADDITIONAL	REQUIREMENTS:			<del></del>	···				
Notif	y Cadillac Dist	rict Office,	urvey Divi	ision, 616/775	-9727	, 48 hrs	. befo	re wor	
is to	commence.								
NAMESCON	E thinks and Donner				<b>.</b>		J		<del></del>
N. R. D	E (Authorized Representative) aniels, Jr., Mic	chigan Opera	tions Superin	tendent	Moan	ul	DATE	1201	51
APPROVED BY	"ichal)	21.11	OFFICE Cadilla	C	APPROVAL DATE 8/28/9	ن 11	TERMINA1	TION DATE	
. <i> </i>	A MINALL !	IMAN	Caulifa	~	1	, 			

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY - GEOLOGICAL SURVEY DIVISION

		Permit number	Well type	Current true vertical depth		
REQUEST FOR TRAN	SFER OF PERMIT	36033	Gas	8118		
Required by authority of Part 615 Su Mineral Wells, Act 451 PA 1994 as am		Well name and number Grein 2-36				
faisification of this information may resu	Surface location					
		SE 1/4 NW			7N R9W	
Part 615 Oil/Gas Well	Part 625 Mineral Well	Township Hersey		Sounty Osceola		
NOTE: Eligibility for permits is conditione	d upon compliance with the statute	s, rules and orders of the	ne Department of En	vironmental Quality.	Permits shall	
not be transferred to persons not in compoundations at the well site until compliance.  This permit does not convey propert private or public rights nor does it was	e is achieved. The acquiring perm y rights in either real estate or m	ittee shall attach a cume aterial nor does it auth	ent Organization Rep N <mark>orize any Injury</mark> to	ort (EQP 7200-13) private property or		
	<del></del>	F A PERMIT FROM:				
Name(s) of Selling Permittee(s)				Fed. I.D.# or S.S.#		
Marathon Oil Company				25-1410539		
Address: Number and Street, City or Tov	m, State, ZIP Code Telephone			(405) 700 70-0		
7301 NW Expressway				(405) 720-7373	,	
Oklahoma City, OK. 73132						
All permits rights and responsibilities are	discharged by:			1		
		_	Marketta		del	
Marathon Oil Company	Charles A. Paulson		Signatur	- La	8/4/00	
remittee	Authorized representative	ve name	Signatu	•	Date	
Permittee	Authorized representative	ve name	Signatu	те	Date	
Permittee	Authorized representative	ve name	Signatu	re	Date	
	TRANSFER O	F A PERMIT TO:				
ame(s) of Acquiring Permittee(s):				Fed. I.D.# or \$.S.#		
RSEC, L.L.C.				84-1533899		
ddress: Number and Street, City or Town				Telephone		
1200 17th Street, Suite 2	350		(2)	221 000 5545		
Jenver, CO 80202				03) 892-5616		
We are) (I am) an owner or authorized replication bandonment in conformity with the law, re		under this permit and	assume full respons	ibility for the drilling,	operation, and	
BOND: Single Well Attach	_					
☐ Blanket ☐ On File		nding	Amount			
Statement of Financial Re			$\wedge$			
All permittee rights and responsibilities are	assumed by:		Ų.			
RSEC, L.L.C.	Stave Swanson				Viela.	
Permittee	Steve Swanson man		Signature		011 00	
Cellinues	Authorized representative	name	V Signauni	•	0208	
Permittee	Authorized representative	name	Signatura	3	Date	
	,					
Permittee	Authorized representative	патте	Signature	9	Date	
F	OR DEPARTMENT OF ENVIR	ONMENTAL QUALIT	TY USE ONLY			
		MΔY	/ 12 12 12 12 14 14 14 14 14 14 14 14 14 14 14 14 14	stribution by DEQ		
approved Dand	Ham				ing Owner	
Si	gnature	Da	te Li	Field Acq	uiring Owner	

EQP 7200-7 (Rev 3/99) Mail Original and 3 copies to:

GEOLOGICAL SURVEY DIVISION

MICHIGAN DEPT OF ENVIRONMENTAL QUALITY

PO BOX 30256

LANSING MI 48909-7756

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MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY - GEOLOGICAL SURVEY DIVISION

		Permit number	Well type	Current true vertic	al depth
REQUEST FOR TRANS	SFER OF PERMIT	36033	Gas	8118	
Required by authority of Part 615 Sup	ervisor of Wells or Part 625	Well name and num			
Mineral Wells, Act 451 PA 1994 as ame	nded. Non-submission and/or	Grein 2-36	Cfal		·
falsification of this information may result	in fines and/or imprisonment.	Surface location	Aza Misi aza	Continu 25 T	17N R 9W
Part 615 Oil/Gas Well	Part 625 Mineral Well	SE 1/4 NW		Section 36 T	1/11 K 3M
M. Fall o 15 Omoas Well	Laif 052 Milliotal AABil	Hersey		Osceola	
NOTE: Eligibility for permits is conditioned	upon compliance with the statute	s, rules and orders of	the Department of E	nvironmental Quality	r. Permits shall not
be transferred to persons not in compliano					factory conditions
at the well site until compliance is achieved.  This permit does not convey property.					or invasion of
private or public rights nor does it waive					
10 N	TRANSFER OF	A PERMIT FROM	<u>:</u>	5-4-15-6-5-5	
Name(s) of Selling Permittee(s)				Fed. I.D.# or S.S 84-1533899	
RSEC, L.L.C. Address: Number and Street, City or Town	State 7ID Code Taleshana			04-155565	,
_	·				
1200 17th Street, Suite 2 Denver, CO 80202	2300			(303) 892-	-5616
טפוועפר, טט סטבטב		į	<b>1</b>	(000)	- <del></del>
All permits rights and responsibilities are d	ischarged by:			· · · · · · · · · · · · · · · · · · ·	
	- •	<	*		
RSEC, L.L.C.	Steve Swanson	Į.			8/15/62
Permittee	Authorized representative	e name	PRESIDENT	ure	Date
			Liveragal		
Permittee	Authorized representative	na/ne	Signati	ure	Date
Permittee	Authorized representative	name	Signati	ıre	Date
Name(s) of Acquiring Permittee(s):	IRANSPER	OF A PERMIT TO:		Fed. I.D.# or \$.5	i.#
Whiting Petroleum Corpora	ation			84-091882	9
Address: Number and Street, City or Town				Telephone	
1700 Broadway, Suite 2300	0			/000\ 000	1661
Denver, CO 80290-2300				(303) 837	
(We are) (I am) an owner or authorized rep	resentative of the owner of the we	ell under this permit a	nd assume full respon	nsibility for the drilling	ng, operation, and
abandonment in conformity with the law, re BOND: Single Well Attach	_	. 1 0 -	14 C		
BOND: ☐ Single Well ☐ Attach  ☑ Blanket ☑ On File		evelers Casua		250,000	·
☐ Statement of Financial Re		3847277		230,000	· · · · · · · · · · · · · · · · · · ·
All permittee rights and responsibilities are	•				
	•	(-		-0	
hiting Petroleum Corporat	ion James T. Brown	>	James T.	Dun	8-15 02
Permittee	Authorized representative	name	Signati	ure	Date
Permittee	Authorized representative	e name	Signati	ure	Date
Permittee	Authorized representative	name	Signati	ure	Date
	OR DEPARTMENT OF ENVIR	UNREN AL QUA	LIT USE UNLY	Distribution by DEQ	<del></del>
Approved Daniel	L. 12	NOV	A F AAAA		Selling Owner
	gnature			Field A	cquiring Owner
				DEDMITC 2	BONDING
				LEMMI13 of	MAIIBIIIA
					2002
EQP 7200-7 (Rev 3/99) Mail Original	and 3 copies to: GEOLOGICA	L SURVEY DIVISION	N	AUG 2	5 2002

MICHIGAN DEPT OF ENVIRONMENTAL QUALITY PO BOX 30256 LANSING MI 48909-7756

Current true vertical depth

GEOLOGICAL SURVEY

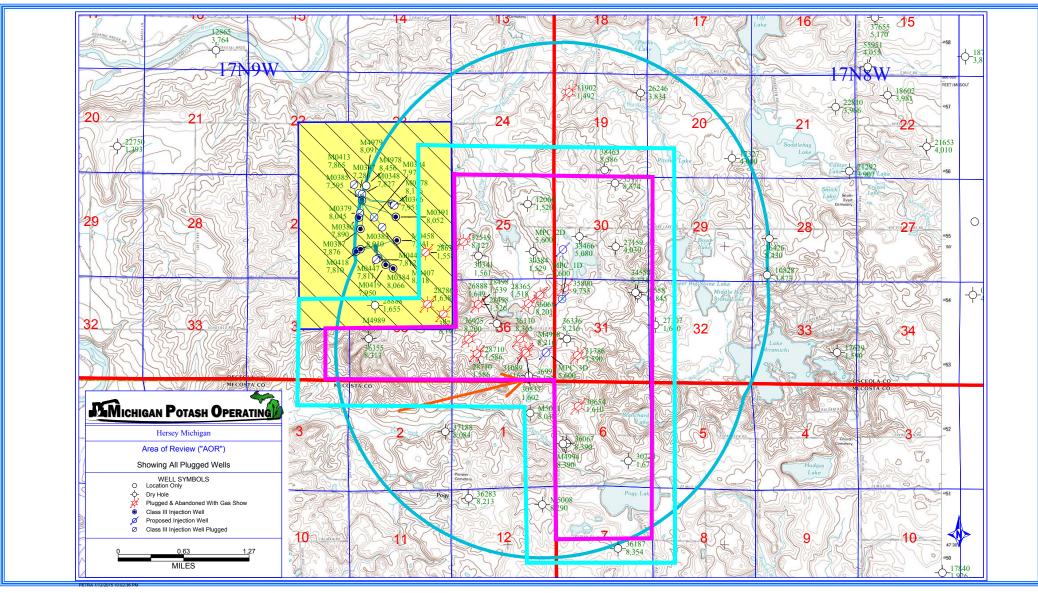


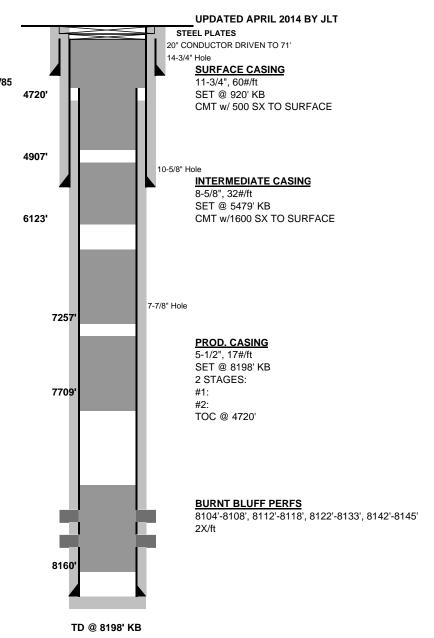
Figure B4. Map showing all plugged wells, shallow (that do not penetrate any confining horizon) or deep (that penetrate confining horzion) within the area of review. Total Depths are listed. There are several shallow Michigan Stray wells that do not penetrate the injection or confining horizon.

### **HODGES 1-36**

## SE SW SE Sec 36 T17N R9W OSCEOLA COUNTY, MI

### **CURRENT WELLBORE DIAGRAM**

API No. 21-133-36991-0000 GL @ 1164.2' KB @ 1180.4' WELL COMPLETION DATE: 12/21/83 PLUGGING COMPLETION DATE: 9/9/85



#### **HODGES 1-36 WELL HISTORY**

DATE DESCRIPTION

9/13/1983 SPUD.

12/21/1983 WELL COMPLETED. FORMATION AT TD CABOT HEAD. PRODUCTING FM BURNT BLUFF.

20" SET AT 71', DP

11-3/4" SET AT 920'; 500 SX 8-5/8" SET AT 5479'; 1600 SX

5-1/2" SET AT 8198', CMT TOP AT 4720'

12/3/1983 PERFORATED 2X/FT:8104'-8108', 8112'-8118', 8122'-8133', 8142'-8145'

12/4/1983 3000 GAL. 20% HCI FROM 8104'-8145'

9/9/1985 PLUGGING STARTED

HOLE WAS LOADED WITH 65 BBLS OF 11# BRINE. WELLHEAD WAS REMOVED AND BOPE INSTALLED. BAKER LOK-SET PACKER WAS RELEASE AND TUBING PULLED. TIH and spot 50 SX A at 8160 and squeeze. Spot 50 SX A at 7709. Spot 75 SX LITE at 7257, spot 65 SX light at

6123. Cut 5 1/2 at 4528.

TRIPPED IN HOLE OPEN ENDED TO 4907', TAGGED CEMENT. SPOTTED 100 SX @ 4907', 140 SX @ 4052', 140 SX @ 3212', 140 SX @ 2397', 140 SX @ 1562', 80 SX @ 752', 50 SX CLASS A @

187'.

CUT OFF AND CAPPED 11-3/4" & 8-5/8" PIPE 3' BELOW GROUND.

9/9/1985 PLUGGING COMPLETED

U94 430

# . STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES

TEB 1 5 1984

PERMIT NUMBER 36991

LOG OF OIL, GAS, DISPOSAL OR STORAGE WELL (ACT 61)
Submit in DUPLICATE Within 30 Days after Well Completion

NAME AND TITLE (PBINT)
William E. Booker, Geologist

DA 12/1/83

DEEPENING PERMIT NUMBER

NAME(S) &				_,	ON PERMIT				RESS OF								
1			s Co., 1				T. D. Provins Drilling Company										
1		-	ise Driv				2113 Enterprise Drive										
			, MI 488				Mt.	Ple	asant,	MI	488						
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I AM RESPO	NSIBLE	F01	R THIS REP	ORT. THE	INFORMATI	ON IS COM	PLETE AN	D C	ORRECT.							i)	

SIGNATURE

STATE OF MICHIGAN TYPE OR PRINT REQUEST FOR TRANSFER OF A PERMIT WELL TYPE PERMIT NO 36991 SUBMIT Department of Natural Resources Geological Survey Division APR 2 6 1988 Dry Hole 4 COPIES TO: FIELD NAME Box 30028 Hersey-Clinton Lansing, Michigan 48909 WELL NAME AND NUMBER Filing for change of ownership of well is required in accordance with WAC! Hodges 1-36 61, P.A. 1939 and Act 3l5 P.A. 1969, as amended, and Administrative WILL LOCATION Rules promulgated thereunder. SE 1/4 SW 1/4 9W SE 1/4 SECTION TOWNSHIP COUNTY Hersey Osceola TRANSFER OF A PERMIT FROM: NAME(S) OF SELLING OWNER(S) PPG Oil & Gas Co., Inc. ADDRESS. Number and Street -- City or Town -- State -- Zip Code -- Telephone One Jackson Square, Suite 600, Jackson, MI 49201 (517) 782-8145 All operating rights are discharged by: Date(s) Owner(s) Representative(s) PPG Oil & Gas Co., Inc., Richard M. Rompala ELIGIBILITY FOR PERMITS IS CONDITIONED UPON COMPLIANCE WITH THE STATUTES, RULES AND ORDERS OF THE DEPARTMENT OF NATURAL RESOURCES. PERMITS WILL NOT BE GRANTED TO PERSONS NOT IN COMPLIANCE. NON-SUBMISSION AND/OR FALSIFICATION OF THIS INFORMATION MAY RESULT IN FINES AND/OR IMPRISONMENT. TRANSFER OF A PERMIT TO: NAME(S) OF ACQUIRING OWNER(S) Marathon Oil Company ADDRESS Number and Street -- City or Town -- State --Telephone One Jackson Square, Suite 600, Jackson, MI 49201 (517) 782-8145 (We) (I) have acquired the well under this permit and assume full responsibility for the drilling, operation, and abandonment in conformity with the law, regulations and orders. BONDING CO. SAFECO Insurance Company of America SURETY BOND: SINGLE WELL ATTACHED BOND NUMBER 5194219 ON FILE All operating rights and responsibilities are assumed by Owner(s) Representative(s) Signature(s) ul 16- 3/28/88 Marathon Oil Company, Donald R. Hall

FOR DEPARTMENT OF NATURAL RESOURCES USE ONLY

APPROVED Signature

6/20/88

DISTRIBUTION BY DNR
Lansing
Acquiring Owner
Setting Owner

Field

### STATE OF MICHBAN PERMI HUMBER ONA DISTRIBUTION DEPARTMENT OF HATURAL RESOURCES 36991 Permittee - Ong & 1 copy PRESCHOOLCAL BURNEY DIVISION Division Office - 2 copies FILLO HAME Others - On request MANIE AND ADDRESS OF PERMITTEE PPG OIL & Gas Regulatory Control Unit Field Office - File copy PERMIT TO PLUG AND ABANDON Hersey LOCATION (W % % or other) BECTION TOWNSHIP SE SW SE, 36 ₹ 17N A 9W Hersey Osceola TYPE OF WELL (Oil, Gas, Dry Hole, etc.) DATE COMPLETED DATE PLUGGING WILL START PLUGGING PERMIT REQUESTED BY & DATE Dry hole 12/21/83 Don Smith a.s.a.p. PLUGGING TO BE DONE BY LAST PRODUCTION BOPO MCFGPO DATE will notify PERMIT MALED TO COPIES MAILED TO CANNO AND CEMENTING RECORD HOLE DIA CASING DIA. & WT/FT. CEPTHS SET CMT. TOP. PERFORATIONS CEMENT QUANTITY, TYPE, ADDITIVES 8104-08 <del>20"</del> 71' $\overline{\mathrm{DP}}$ 11-3/4" 8112-18 920 circl 500 8122-33 8-5/8" c ircl 5479 1600 8142-45 5-1/2" 4720 8198' GEOLOGIC DATA; GAS AND OIL SHOWS; DRILLING AND COMPLETION DATA: PLUGGING REQUIREMENTS. its dullined are to be executed in accordance with the provisions of Act 81, P.A. 1930, as amended, and rules and orders adopted thereu

Release pkr., pump 10 sx cmt, reset packer & squeeze. Freept. and pull 5½" csg.

Release pkr., pump 10 sx cmt, reset packer & squeeze. Freept. and pull 5½" csg. about 4700'. Spot 850 sx lite cmt. & 45 sx Cl A for fill up. Cut csg. 3' below grd level & cap w/cmt. & steel plate.

\*NOTE BONDS CANNOT BE RELEASED UNTIL A PLUGGING IS COMPLETED, CELLAR RAT HOLE AND PITS FILED, WELL SITE RESTORED AND RECORDS FILED. WATER WELLS MUST BE PLUGGED ACCORDING TO RULE 106 OF ACT 294 P.A. 1965, "GROUND WATER QUALITY CONTROL". It is further media a requirements of this permit that the applicant give notice to the public utilidize in accordance with Act 53, P.A. 1974 C.L. 480 701 to 440.718 and comply with each of the requirements of the act.

AUTHORIZED BY (evanture)	OFFICE	DATE
michael Mass	Cadillac D#6	9/25/85

## STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES GEOLOGICAL SURVEY DIVISION

# CADILLAC HAS COPY (Ambiet and their

## WELL PLUGGING RECORD

PERMIT NUMBER

4052',

2397'

3212'

1562

140 sx

140 sx

(Submit in TRIPLICATE Within 30 Days After Plugging is Completed)						36991			
					FIELD	Hersey			
COMPLETE NAM	E(S) AND ADDRES	SS OF WELL OWNER	1		•				
PPG Oil &	Gas Co., Ir	nc. 2258 Enter	rprise Drive,	Mt. Pleasant,	MI 4	8858			
	SE OR FARM NAM						WELL NUMBER		
Hodges							1-36		
WELL LOCATION	V	-			TOWN	SHIP	COUNTY		
SE ¼	SW % S	SE % SEC. 36	5 T. 17N	N R. 9W	Her	sey	Osceola		
TYPE OF WELL (	Oil, Gas, Dry Hole,	etc.)		TOTAL DEPTH	FORM	ATION			
Dry Hole				8198'	Cab	ot Head			
9-9-85	STARTED	9-9-85	COMPLETED	DEPT REPRESENTAT			T 90% WXWX96% R		
-									
	CASING	RECORD				BRIDGES OR PLUGS	5		
SIZE CASING	DEPTH SET	AMOUNT RECOVERED	SHOT OR RIPPED	TYPE (Brush, St Cement, Mechanica		DEPTH PLACED	SACKS OF CEMENT AND ADDITIVES		
20"	71'	ni]		cement		8160', 7709'	50 sx		
11 3/4"	920'	nil				7257', 6123'	75 sx		
8 5/8"	5479	nil				4907'	100 sx		

		<del></del>	187'	50 sx Class /
Were tools, tubing, casing, etc., lost or left in the hole before or during plugging?	YES	NO	If yes, give details:	
Did a Service Company pump mud, spot cement, or set bridge plugs?	X YES	□NO	If yes, give name and address: Halliburton	
Was the well plugged by a Company or Contractor other than Owner or Operator?	YES	X NO	If yes, give name and address:	
Representatives of Owner, Operator, Company, plugging:	or Contractor v	who witnessed	Slim Cookingham	

shot

4509

81981

plugging:	
DESCRIBE IN DETAIL HOW WELL WAS PLUGGED	Hole was loaded with 65 bbls of 11# brine. Wellhead was
<u>removed and BOPE installed. Bak</u>	er lok-set packer was released and tubing pulled. Laid down
packer and ran in open end tubing	g to 8160'. Spot 50 sx Class A with .3 of 1% He4. Squeeze
for 1 hr. at 400#. Spot 50 sx (	Class A with .3 of 1% He4 at 7709. 75 sx HOWCO Lite @ 7257'.
	1/2" casing @ 4528 KB, recovered 4509'.
	07', tagged cement. Spotted 100 sx @ 4907', 140 sx @ 4052',
140 sx @ 3212', 140 sx @ 2397',	140 sx @ 1562', 80 sx @ 752', 50 sx Class A @ 187'.
Cut off and capped 11 3/4" & 8 5	
	(USE REVERSE SIDE (F NEEDED)
· · · · · · · · · · · · · · · · · · ·	

"I state that I am authorized by said Owner or O tion, and that the facts stated herein are true, co	CERTIFICATION  Description of the control of the co
NAME AND TITLE (Typed or Frinted) Donald P. Smith	PPG 011 & Gas Co., Inc
	2258 Enterprise Drive

5 1/2"

Mt. Pleasant, MI 48858

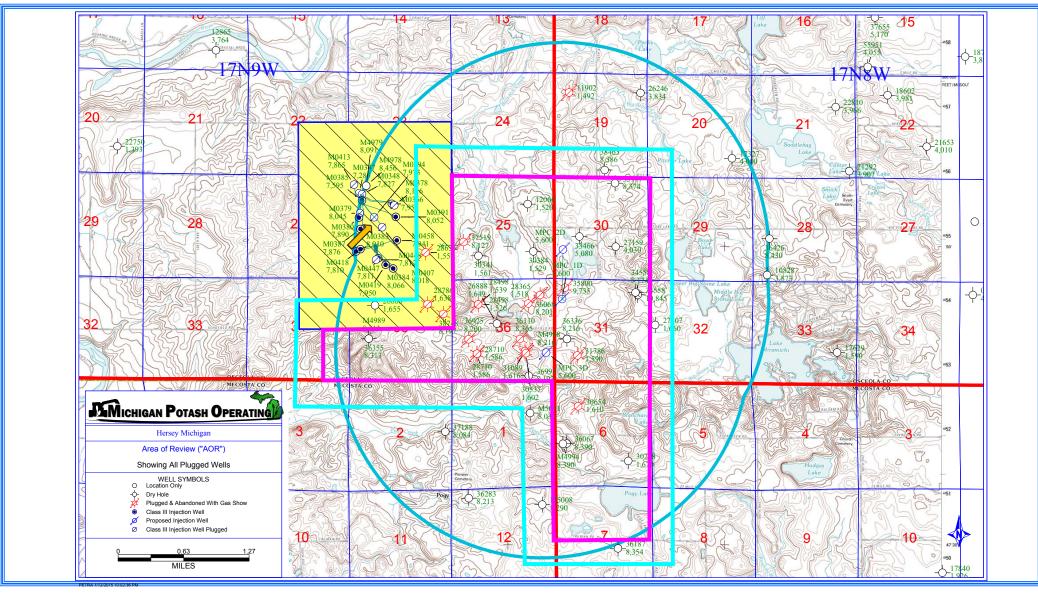
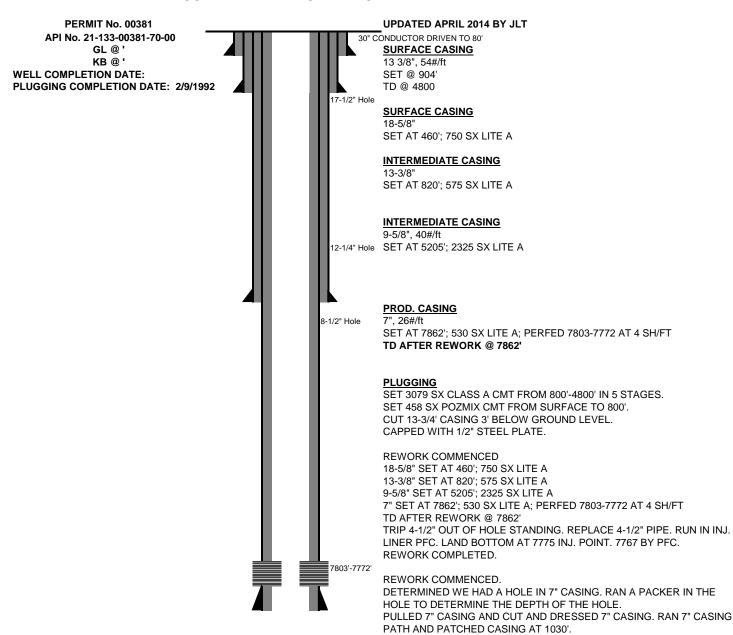


Figure B4. Map showing all plugged wells, shallow (that do not penetrate any confining horizon) or deep (that penetrate confining horzion) within the area of review. Total Depths are listed. There are several shallow Michigan Stray wells that do not penetrate the injection or confining horizon.

### **KALIUM 1031**

## SW NW NW Sec 26 T17N R9W OSCEOLA COUNTY, MI

### **CURRENT WELLBORE DIAGRAM**



AFTER REWORK TD @ 7862' TD @ 4800' REWORK COMPLETED.

### **KALIUM 1031 WELL HISTORY**

<u>DATE</u> <u>DESCRIPTION</u>

2/9/2009 SPUD.

DRILLING COMPLETED.

13 3/8" SET AT 904';

2/8/1992 PLUGGING START DATE

SET 3079 SX CLASS A CMT FROM 800'-4800' IN 5 STAGES. SET 458 SX POZMIX CMT FROM SURFACE TO 800'. CUT 13-3/4' CASING 3' BELOW GROUND LEVEL.

CAPPED WITH 1/2" STEEL PLATE.

4/25/1997 REWORK COMMENCED

18-5/8" SET AT 460'; 750 SX LITE A 13-3/8" SET AT 820'; 575 SX LITE A 9-5/8" SET AT 5205'; 2325 SX LITE A

7" SET AT 7862'; 530 SX LITE A; PERFED 7803-7772 AT 4 SH/FT

TD AFTER REWORK @ 7862'

TRIP 4-1/2" OUT OF HOLE STANDING. REPLACE 4-1/2" PIPE. RUN IN INJ. LINER PFC. LAND BOTTOM AT 7775 INJ. POINT. 7767 BY

PFC.

4/29/1997 REWORK COMPLETED.

7/6/2004 REWORK COMMENCED.

DETERMINED WE HAD A HOLE IN 7" CASING. RAN A PACKER IN THE HOLE TO DETERMINE THE DEPTH OF THE HOLE.

PULLED 7" CASING AND CUT AND DRESSED 7" CASING. RAN 7" CASING PATH AND PATCHED CASING AT 1030'.

7/11/2004 REWORK COMPLETED.

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MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY - OFFICE OF GEOLOGICAL SURVEY

Permit number

394-855-767

API number

Well name and number

Kalium 1031 (Mosaic Potash)

## RECORD OF WELL PLUGGING OR CHANGE OF WELL STATUS

Required by authority of Part 615 Supervisor of Wells or	MI-133-3G-A002					
Part 625 Mineral Wells of Act 451 PA 1994 as amended	Name and address of permittee					
Non-submission and/or falsification of this information	Mosaic Potash Hersey					
may result in fines and/or imprisonment	1395 135 <sup>th</sup> Ave					
	Hersey Mi 49639					
☐ Part 615 Oil/Gas Well ☐ Plugging						
□ Part 625 Mineral Well  □ Change of Well Status						
Name and address of contractor/service company	Type of well	Field name				
Mosaic Potash Hersey	Solution Mining	Kalium (Mosaic Potash)				
1395 135 <sup>th</sup> Ave	Surface location					
Hersey, Mi 49639	SW 1/4 SE 1/4 NW1 /4	Sec 26 T 17 N R 9 W				
	Township	County				
	Hersey	Osceola				
	Date plugging/change started	Date plugging/change completed				
	10/15/2009	/10/22/2009				
DEQ employee issuing plugging permit or approving Change of Well Status		Date issued				
Raymond Vugrinovich		3/8/2009				

Any change of well status which results in a change of production or a change in injectivity must include production or injection test records. All records must include a narrative or daily chronology and signed certification noted on reverse

				(Hole	WELL PLUGGIN conditions after p				
				,	CASING	00 07			
	Casing size		Where	set	Amount c	asing pulled	Depth casing cut/perfed; or windows milled		
18 5/8"			460'		0				
13 3/8 "			820'	<u> </u>	0				
9 5/8 "			5205'		0				
7 "			7862'		4820'				
-									
		_							
					PLUGS				
0	Secretaria de la compansión de la compan	1	Make and type	1	Cement plugs: type Additiv		Volume and types		Tagged
	in of olug	Of	bridge or plug	amo	ount of cement &	and percent	of spacers/flushes	Wait time	Top?
Bottom	Top	10.00			mix water				Y/N
6100'	5554'	CIBF	- <u></u>	100 Sacks		None	FW/41.2 BBL	24 Hrs _	Υ
5244'	4478'			150 Sacks		None	FW/33 BBL	0	N
4478'	3978'			175 Sacks	of 50/50 Poz	None	FW/29.5 BBL	0	N
3978'	3478'			175 Sacks	s of 50/50 Poz	None	FW/25.8 BBL	0	N
3478'	2978'			175 Sacks	s of 50/50 Poz	None	FW/22.0 BBL	0	N
2978'	2478'			175 Sacks	175 Sacks of 50/50 Poz N		FW/18.3 BBL	0	N
2478'	1978'			175 Sacks of 50/50 Poz		None	FW/14.6 BBL	0	N
1978'	1478'			175 Sacks	175 Sacks of 50/50 Poz		FW/10.9 BBL	0	N
1478'	978'			175 Sacks	of 50/50 Poz	None	FW/7.2 BBL	0	N
978'	478'			175 Sacks	of 50/50 Poz	None	FW/3.8 BBL	0	N
478'	300'			64 Sacks	of 50/50 Poz	None	FW/1.3 BBL	0	N

Check if NORM or other materials were left or reinserted into wellbore. If so, describe materials fully in the Daily Chronology section on reverse.

Check if cores were taken and attach core descriptions

Mail completed original and three copies to the appropriate DEQ district office within 60 days after completion of plugging/change of a Part 615 oil/gas well or within 30 days of a Part 625 mineral well.

OFFICE OF GEOLOGICAL SURVEY MICHIGAN DEPT OF ENVIRONMENTAL QUALITY PO BOX 30256 LANSING, MI 48909-7756

RECEIVED

NOV 1 7 2009

R		4	7
14	1	45	40

Part 615 Oil/Gas Well

□ Part 625 Mineral Well

Mosaic Potash Hersey 1395 135<sup>th</sup> Ave Hersey, Mi 49639

Raymond Vugrinovich

Name and address of contractor/service company

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY - OFFICE OF GEOLOGICAL SURVEY

RECORD (	OF WE	LL PLU	JGGING
OR CHANG	GE OF	WELL:	STATUS

Required by authority of Part 615 Supervisor of Wells or Part 625 Mineral Wells of Act 451 PA 1994 as amended Non-submission and/or falsification of this information may result in fines and/or imprisonment

DEQ employee issuing plugging permit or approving Change of Well Status

□ Plugging

Change of Well Status

3 CIMIN HUMBOO	YYEII Hairie and Humber							
394-855-767	Kalium 103	(Mosaid	Potash)					
API number								
MI-133-3G-A002	MI-133-3G-A002							
Name and address of permittee								
Mosaic Potash Hersey 1395 135 <sup>th</sup> Ave								
Hersey Mi 49639								
Type of well		Field name						
Solution Mining		Kalium	Mosaic Po	tash)				
Surface location								
SW 1/4 SE 1/4	NW <sub>1</sub> /4	Sec 26	T 17 N	R 9 W				
Township		County						
Hersey		Osceola						
Date plugging/change	started	Date plugging/change completed						
10/15/2009		/10/22/20	009					
		Date iss	ued					

3/8/2009

WELL PLUGGING (Hole conditions after plugging) CASING Depth casing cut/perfed; or windows milled Where set Amount casing pulled Casing size 18 5/8" 460' 0 820 0 13 3/8 9 5/8 " 5205 0 7862 4820' **PLUGS** Cement plugs: type, Additives type Volume and types Tagged Make and type amount of cement & and percent of spacers/flushes Wait time Top? Depth of plug of oridge or olug Y/N Bottom Top mix water 300 Surface 108 Sacks of Class A None 0 None None None None None None None None None None Check if NORM or other materials were left or reinserted into wellbore. If so, describe materials fully in the Daily Chronology section on reverse.

Any change of well status which results in a change of production or a change in injectivity must include production or injection test records. All records must include a narrative or daily chronology and signed certification noted on reverse

Mail completed original and three copies to the appropriate DEQ district office within 60 days after completion of plugging/change of a Part 615 oil/gas well or within 30 days of a Part 625 mineral well.

OFFICE OF GEOLOGICAL SURVEY MICHIGAN DEPT OF ENVIRONMENTAL QUALITY PO BOX 30256 LANSING, MI 48909-7756

Check if cores were taken and attach core descriptions

RECEIVED

NOV 1 7 2009

API number MI-133-3G-A002						Permit num 394-855-76				
				CHA	NGE OF W	-				
Change was	sto: 📋	Convert current:  Production Disposal Secondary Storage Other		Remedia Per		ting zone nent	Plugback New	ondary recovei age	ne Horizo	ontal drain hole used casing ream open hole
				Well ca	sing record -	BEFORE d				
Cas	sing	Cem	ent	1101100	Perforat	· ·				
Size	Depth	Sacks	Туре	From	То	If plugged,	HOW?	Aci	d or fracture treatm	ent recor <u>d</u>
		Well casing r	ecord - AF	TER change	(Indicate add	ditions and c	changes c	only, complet	te test record)	
Cas	sing	Cem	ent		Perforat	tions				
Size	Depth	Sacks	Туре	From	То	If plugged,	HOW?	Aci	d or fracture treatm	ent record
								_		
		DEFORE	CHANCE	1		1		ACTED	CHANGE	
Total depth	Co	mpleted Fm	Well comp	leted for		Total depth	Com	ipleted Fm	Well completed f	or
BOPD		CFGPD	Inj Rate		sure	BOPD	MCF	GPD	Inj Rate	Pressure
	DA	ILY PRODUCTI	ON TEST R	ECORD		DAILY INJE	CTION TE	ST RECORD	Injection well	Brine disposal
	Oil	Water	Gas	Pres	sure		Bbis wa	ater [	Pressure	Specific gravity
Date	(bbls)	(bbls)	(Mcf)	Tubing	Casing	Date	or Mcf	gas Begi	nning Ending	of water
									ALCEI	VED
									1101	2000
				'		<u>'</u>		<u>.</u>	NVIRONMENTAL	Olisia
		ily chronology of c run Include date:		ing, include day		Describe excep		*	DIFFICE OF GEOLOGIC	AL SURVEY
Date	Narrativ	/e								
5/20/09 10/15/09 10/21/09 10/22/09	10/15/09 Set 100 sks of Class A @ 6088' Wait on cement and tag on 10/21/2009 @ 5400' Set 150 sks of Class A @ 5244' and cement up the 7" and into the 9 5/8" at the 7" cutoff point of 4820'									
10/23/200	1 -	8' Set 64 sks f wellhead 4'						300'. Had	cement to surfa	.ce
of a plugged CERTIFICA	i well. TION I sta	•	orized by sa	id owner This					has continuing liab	oility for the integrity
Name and ti William H	icks (	Minefield Sup				rized-stonature	l k	life		Date 11/4/2009
NOTE: Bond	OTE: Bonds cannot be terminated until plugging is completed, cellar, rat and mouse holes, and pits filled, site leveled and cleaned and records filed.									

	MICHIGA	N DEPARTMEN	T OF ENVIRONMENTA	AL QUALITY - OFFICE OF GEOLOGICAL SURVEY				
DE€	APPLIC	ATION TO:		Permit number Type of well				
	CHANGE WE	LL STATUS	OR	394-855-767 Solution Mining				
	PLUG AND A			API number			-	
Required	by authority of Part 615 S			MI-133-3G-A	.002			
	, of Act 451 PA 1994 as			Name and address of permittee				
falsificat	ion of this information ma	y result in fines :	and/or imprisonment	Mosaic Potash Hersey				
☐ Par	t 615 Oil or Gas Well	⊠ Pa	art 625 Mineral Well	1395 135 <sup>lh</sup> Ave				
Change of	well status requested to:			Hersey, Michigan 49639				
☐ Plug ba	·	☐ Tempora	rily abandon	Well name and number				
Convert		Other	-	Kalium 1031	(Mosaic Potash)			
Last produc	ction/injection rate and typ	e of fluid		Well location				
, '	•,			SW 1/4 of N	N 1/4 of NW 1/4	Section 26 T	17N n9W	
Brief descri	ption of project			Township		County		
Set CIBP	' @ 6100'-Set 100 Sa	ack Class A r	lug-Cut and Pull 7"	Hersey		Osceola		
	Dement continous 50			Date drilling cor	npleted	Date last produce	ed/utilized	
i	olug to surface. Cut of			10-14-94		3/13/2007		
Work to be		, Homroda d	Tru oup.			Starting date		
	otash Hersey					5/1/2009		
	<u>,</u>		CASING AND CEM	IENTING RECOF	ID.			
Hole dia	Casing dia & wt/ft	Depths set		quantity, type, ac	_	Cement top	Perforations	
24"	18 5/8" 87#	460'	750 Sacks Lite A			Surface		
17 1/2"	13 3/8" 54#	820'	575 Sacks Lite A			Surface		
12 1/4"	9 5/8" 40#	5205'	2325 Sacks Lite A			Surface	2224-22281	
8 1/2"	7" 23 & 29#	7862'	530 Sacks H			5600'	7772-7803'	
Formation r	ecord (formation and dep	th of top, oil, gas	and water shows, etc.):					
formation	depth							
Detail propo	osed procedures:		<del>.</del>					
	? @ 6100'- Set 100 s	ack Class A	olug @ 6100' Bug F	ree point tool	and determine free	e 7" casing Cut	and null 7"	
	ying down. Set contir							
	rom 300' to surface				ir deptir to 500 . Se	et 110 Oack plag	g or Olass A	
Cement	Tom 500 to sunace	Out on welling	sad and cap 3 3/6 C	asing.				
							,	
							i	
Name/signa	ature (authorized represer	ntative):		_		Date:		
						3/20/2	2009	
		FO	R OFFICE OF GEOLOG	ICAL SURVEY U	SE ONLY		2 56244	
DEQ addition	nal requirements:	0 (		· 7	Marinautail	RECE	IVED	
λ	OTIFY MARKS	MITH (Z	31-876-4434)	I AND KAY	VUGRINOVICH	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
(5)	onal requirements:  OTIFY MARK  7 241 1532) I SUID RIECOVERS THOMAS DISPO	VO LATER	THAN 72. HOL	irs befo	RE PLUGGIN	14 MAD 9	1 2009	
	SUID RIECOVERS	SO DURING	PLUGGING MA	Y 56 DISA	osed in the	VVOODABARE	2000	
	THOMAS DISPO	SALUGU	. گ	<u>-</u>			TAL OUALITY	
			ests to commence within			CMMORE WARRED	OGICAL SURVEY	
∑ Yes □	No Service company	records are to	oe filed					
Approved by	y DEQ:	<u> </u>	Office:		Approval date:		ation Date:	
Kain	mono breamo	vuh	LANSING	F	3/8/2009	3/8/	2010	
17	/ Submi	t original and thr	ee (3) copies of this appli	cation to the Dist	rict Office within 60 da	ys ofchange of well	status	
-			es of Record of Well Plu				iested	
	service company records are to be filed within 60 days of completion at the District Office							

EQP 7200-6 (rev 8/2004) side 1

MICHIGAN DEPARTMENT OF ENVIR APPLICATION TO:	Permit number   API number
☐ CHANGE WELL STATUS OR	394-855-767 MI-133-3G-A002
☐ PLUG AND ABANDON WELL	Well name and number
	Kalium 1031 (Mosaic Potash)
Contin	nuation of proposed procedures
	RECEIVED
	MAR 3 1 2009
	ENVIRONMENTAL QUALITY OFFICE OF GEOLOGICAL SURVEY

#### MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY - GEOLOGICAL SURVEY DIVISION Permit number Current true vertical depth Well type REQUEST FOR TRANSFER OF PERMIT M-394 Brine Prod. 7586 Well name and number Required by authority of Part 615 Supervisor of Wells or Part 625 Kalium Hersey 1031 Mineral Wells, Act 451 PA 1994 as amended Non-submission and/or Surface location falsification of this information may result in fines and/or imprisonment. SW 1/4 NW 1/4 NW 1/4 Section 26 T 17N R9W Part 615 Oil/Gas Well Part 625 Mineral Well Township County Osceola Hersey NOTE: Eligibility for permits is conditioned upon compliance with the statutes, rules and orders of the Department of Environmental Quality Permits shall not be transferred to persons not in compliance. A permit for a well shall not be transferred if the permittee is under notice because of unsatisfactory conditions at the well site until compliance is achieved. The acquiring permittee shall attach a current Organization Report (EQP 7200-13) This permit does not convey property rights in either real estate or material nor does it authorize any injury to private property or invasion of private or public rights nor does it waive the necessity of seeking federal and local permits or complying with other state statutes. TRANSFER OF A PERMIT FROM: Name(s) of Selling Permittee(s) Fed LD# or S.S# 38-3545577 Kalium Chemicals, Limited Address: Number and Street, City or Town, State, ZIP Code Telephone 231-832-3755 1395, 135th Avenue Hersey, MI, 49639 All permits rights and responsibilities are discharged by: Kalium Chemicals, Limited Colin Howard 16/04/2001 Signature Date Permittee Authorized representative name Permittee Authorized representative name Signature Date Permittee Authorized representative name Signature Date TRANSFER OF A PERMIT TO: Fed ID.# or SS# Name(s) of Acquiring Permittee(s): IMC Potash Hersey Inc ME0132184 Address: Number and Street City or Town State ZIP Code Telephone 231-832-3755 1395. 135th Avenue Hersey, Ml. 49639 (We are) (I am) an owner or authorized representative of the owner of the well under this permit and assume full responsibility for the drilling operation, and abandonment in conformity with the law, regulations and orders BOND: Single Well ☐ Attached Surety or Bank Royal Bank of Canada On File **Bond Number** P43087C00008 \$25,000 Amount ☐ Statement of Financial Responsibility All permittee rights and responsibilities are assumed by: 16/04/2001 IMC Potash Hersey Inc. Colin Howard Permittee Authorized representative name Signature Date Permittee Authorized representative name Signature Date Signature Date Permittee Authorized representative name FOR DEPARTMENT OF ENVIRONMENTAL QUALITY USE ONLY Distribution by DEQ MAY 0 8 200<del>1</del> Lansing ☐ Selling Owner Approved Field ☐ Acquiring Owner Signature Date

EQP 7200-7 (Rev 3/99)

Mail Original and 3 copies to:

GEOLOGICAL SURVEY DIVISION
MICHIGAN DEPT OF ENVIRONMENTAL QUALITY

PQ BOX 30256

LANSING MI 48909-7756

							395. 2373
		UNITED	STATES ENV	IRONMENTAL	PROTECTION	AGENCY	RECEIVE
			WAS	SHINGTON, DO	20460		
EPA WELL			L REWORK RE	ECORD	<u>FEB 0 4 1999</u>		
NAME AND	ADDRESS C	OF PERMITTEE		NAME AND ADDRESS OF CONTRACTOR			
MC Kalium,	Ltd			IMC Kalium, L	IMC Kalium, Ltd. GEOLOGICAL SUI		
395 135th	Avenue			1395 135th A	1395 135th Avenue ENVIRONMENTAL		
lersey, MI	49639			Hersey, MI	49639		
OCATE W	ELL AND OU	TLINE UNIT O	STATE	COUNTY		PERMIT NUM	BER M394
SECTION PLAT - 640 ACRES MI			Osceola		MI-133-3G-A00		
-	N		SURFACE L	OCATION DES	CRIPTION	•	
	TTTT		SW 1/4 of N	W 1/4 of NW 1	1/4 of 1/4 o	f Section 26 Te	ownship17N Range9W
x							ection and drilling unit
	<del>                                     </del>	<del> - - </del>					
v <del> </del>	<del>                                     </del>	<del>├</del> ├┤ <sub>€</sub>	Surface Loca	ation 1314 ft fr	rom (N/S) N	Line of quarter s	section
` <del>       </del>	<del>                                     </del>	<del>                                     </del>	1	from (E/W)_W		-	
	╅╅	<del>  - </del>	WELL ACTIV			Before Rework	TYPE OF PERMIT
<del> - - -</del>		<del>   - </del>	Brine Di		7862		Individual
┝╌╁╌╂╌		<del> - - </del>	_	ed Recovery	Total Depth		X Area
	<u>                                     </u>		<del></del>	•	7862		
	<u> </u>		<b>-</b>	arbon Storage			Number of Wells_17
			X Sol'n M	-		Commenced	SALAN A Laure Laure
			Lease Name		10/28/98		Well Number
				Date Rework Completed			1031
					1/10/99		
				RECORD - BE		7	
	Casing	Ceme	,	Perforation		-,	Acid or Fracture
Size	Depth	Sacks	Туре	From	To	<u> </u>	reatment Record
30	80	DRIVEN			<u> </u>		
8 -5/8	460	750	LITE A		1		
3 - 3/8	820	575	LITE A				
-5/8	5205	2325	LITE A		<u> </u>		
·	7862	530	LITE A	7803	- Investment of the second	4 SH/FT	
	WEL	L CASING RE	ORD - AFTER	REWORK (Inc	licate Addition	s and Changes (	Only)
C	asing	Ceme	nt	Perforation	าร		Acid or Fracture
Size	Depth	Sacks	Туре	From	То	т	reatment Record
30	80	Driven					
8-5/8	460	750	LITE A		ļ		
3-3/8	820	575	LITE A	1		1	
-5/8	5205	2325	LITE A				
7	7862	530	LITE A				
D	escribe rewo	rk operations in	detail			Wire line logs,	ist each type
		sheets if neces			Log Typ		Logged intervals
		rated above 3C		Recovered	3.7		
		Mill to 7822'.					
and at 7788							
ut 1100	-						
		_		CERTIFICATI	ON -		
Loadifyun	der the nenal	lty of law that 1 i	nave necessalis			ith the informatio	n submitted in this
							nsible for obtaining
							e are significant
penaitie	es for submitt	ang raise inform	adon, including	ne possibility	or time and imp	orisonment (Ref	1. OFR 144.32).
	0.000.000.00			0101117177			DATE SIGNED
		TLE (Please ty	pe or print)	SIGNATURE	, ,	12	DATE SIGNED
aut McMille	en e			1///	Au Al	Media	00/12/100

Minefield Supervisor

		UNITED	STATES ENVI	RONMENTAL F	PROTECTION	AGENCY			
			WASI	HINGTON DC	20460				
EPA	_	_	WELL	REWORK RE	CORD				
NAME AND	ADDRESS C	F PERMITTEE		NAME AND A	DDRESS OF C	ONTRACTOR			
IMC Kalium, I	Ltd			IMC Kalium Lt	d				
1395 135th A	venue			1395 135th Avenue					
Hersey, MI 4	49639			Hersey, MI 49639					
		TLINE UNIT ON	STATE	COUNTY		BER M394			
i .	N PLAT 64		MI	Osceola		MI-133-3G-A00	)2		
	N	<del>-</del>	SURFACE LO	CATION DESC	CRIPTION				
			SW 1/4 of NV	N 1/4 of NW 1	/4 of 1/4 of	Section_26 To	ownship <u>17N</u> Range <u>9W</u>		
							ection and drilling unit		
						•	,		
w		E	Surface Locat	tion 1314 ft fro	om (N/S) N L	ine of quarter s	ection		
			L		on_1314_ft_from (N/S)_NLine of quarter section rom (E/W)_Wline of quarter section				
			WELL ACTIV		Total Depth B		TYPE OF PERMIT		
			Brine Dis		7862		Individual		
				d Recovery	Total Depth A	fter Rework	X Area		
	S			rbon Storage	7862		Number of Wells 16		
			X Sol'n Mi	-	Date Rework	Commenced	110.001 07 770.00		
			Lease Name	9	10/2/97		Well Number		
			Lease Maine		Date Rework	Completed	1031		
l			İ		10/9/97	Completed	1031		
MELL CACIN			/ELL CASING	RECORD - BEI					
	nina	Cemer	31.33A	Perforation			Acid or Fracture		
	asing	Sacks		From	To		reatment Record		
Size	Depth		Туре	From	10		realment Record		
30	80	DRIVEN	LITE A				ARAGE MANAGEMENT OF THE PROPERTY OF THE PROPER		
18 -5/8	460	750	LITE A						
13 - 3/8	820	575	LITE A						
9-5/8	5205	2325	LITE A				_ <del></del>		
7	7862	530	LITE A	7803	7772	4 SH/FT			
				25.110.511.11			2.1.		
		L CASING REC		<del></del>					
	sing	Cemer		Perforation			Acid or Fracture		
Size	Depth	Sacks	Туре	From	То	T	reatment Record		
30	80	Driven							
18-5/8	460	750	LITE A						
13-3/8	820	575	LITE A						
9-5/8	5205	2325	LITE A						
7	7862	530	LITE A						
						4.11			
De	scribe rewor	k operations in	detail			Wire line logs,	list each type		
Us	e additional	sheets if necess	вагу		Log Type	es	Logged intervals		
Trip 4 1/2 Ou	t of Hole. Pa	arted at 6500'.			PFC		7400'-7610'		
Run overshot	and jars. Re	etrieve bottom h	ole assembly.						
Run flat botto	m mill to 778	82'. Trip laying	Run THL						
I certify und	ler the penal	ty of law that I h	ave personally	CERTIFICATION examined and		th the information	on submitted in this		
							nsible for obtaining		
1							re are significant		
		ing false informa							
, 52		3				•	,		
NAME AND (	OFFICIAL TI	TLE (Please typ	e or print)	SIGNATURE			DATE SIGNED		
Paul McMiller				SIGNATURE	2 2.	2.72	0/22/97		
	Minefield Supervisor				Tot for	residen	0/20/11		

	_	UNITED :	STATES ENVI	RONMENTAL F	ROTECTION	AGENCY		
			WAS	HINGTON, DC	20460			
EPA			WELI	REWORK RE	CORD			
NAME AND A	ADDRESS O	F PERMITTEE		NAME AND A	DDRESS OF CONTRACTOR			
IMC Kalium	Ltd			IMC Kalium. Ltd				
1395 135th A	venue			1395 135th Avenue				
Hersey, MI	49639			Hersey, MI 4	ersey, MI 49639			
		TLINE UNIT ON	STATE	COUNTY				
SECTION	N PLAT 64	0 ACRES	MI	Osceola		MI-133-3G-A00		
	N		SURFACE LO	CATION DESC				
						Section 26 To	wnship <u>17N</u> Range <u>9W</u>	
x	<del></del>	<del>     </del>					ection and drilling unit	
lw H		Ħε	Surface Local	tion 1314 ft fro	om (N/S) N I	ine of quarter s	ection	
		<del>-  </del> -		from (E/W)_W				
			WELL ACTIV			efore Rework	TYPE OF PERMIT	
<del> - - -</del>			Brine Dis		7862	0.010110110111	Individual	
		<del>-   -  </del>		d Recovery	Total Depth A	fter Rework	ndividual X_Area	
	S			rbon Storage	7862	TOWOIK	Number of Wells 18	
	3		X Sol'n Mir	-	Date Rework	Commonand	Trainibel of Wells 10	
				iiiig		Commencea	Well Number	
			Lease Name		4/25/98	Campletad		
					Date Rework	Completed	1031	
					5/3/98			
				RECORD - BEI				
	asing	Cemen	-	Perforation	····		Acid or Fracture	
Size	Depth	Sacks	Type	From	То	Т	reatment Record	
30	80	DRIVEN			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		CONTROL OF THE PARTY OF THE PAR	
18 -5/8	460	750	LITE A					
13 - 3/8	820	575	LITE A					
9-5/8	5205	2325	LITE A					
7	7862	530	LITE A	7803	7772	4 SH/FT		
	WEL	L CASING REC	ORD - AFTER	REWORK (Indi	icate Additions	and Changes (	Only)	
Ca	sing	Cemen	ıt	Perforation	s		Acid or Fracture	
Size	Depth	Sacks	Туре	From	To	Т	reatment Record	
30	80	Driven						
18-5/8	460	750	LITE A					
13-3/8	820		LITE A					
9-5/8	5205	2325	LITE A				_	
7	7862	530	LITE A					
-							MAN SA	
Пе	scribe rewor	k operations in o	detail			Wire line logs,	ist each type	
i		sheets if necess			Log Type		Logged intervals	
		ın overshot. Re	<del></del>	na liner	209 1790		33011010	
		THL. Run F.B		*				
			. wiii Oit dilii pi	pe, will to				
7790. KUN 1	7790'. Run THL. Land bottom at 7785'.							
				CEDTIFICATIO	)			
				CERTIFICATIO		to the state of	L-11-11-11-	
1		-					n submitted in this	
l .							nsible for obtaining	
į.							e are significant	
penalties	s for submitti	ng false informa	ition including	the possibility of	of fine and imp	risonment (Ref	CFR 144 32)	
1		TLE (Please type	e or print)	SIGNATURE		. 1	DATE SIGNED	
Paul McMiller	n			1/20	In ha	7/1	05/06/98	
Minefield Sup	Minefield Supervisor				w ma		/	

Minefield Supervisor

# SEPA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY WASHINGTON, OC 20400

## WELL REWORK RECORD

IMC Kalium
1395 135th Avenue
Hersey, MI 49639

IMC Kalium
1395 135th Avenue
Hersey, MI 49639

LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES

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STATE COUN	n Osceola	PERMIT NUMBER MI-133-3G-A002				
SURFACE LOCATION NV	76 UF					
LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING Surfaces 1314 Indian (M/S) N Line of quarter section 650 W Line of quarter section						
WELL ACTIVI	P	cre flaworz TYPE OF PERMIT  C Individual				
☐ Enhanced Record ☐ Hydrocarbon Str	1 10000 6 60000 6-0100	Number of Wells 16				
XSol' n Mir	Date Rework Co. 8-5-96	mmancad Well Number				
Kalium He	sey 0 8-8-96	1031				

Well casing record — Before Rework Casing Acid or Freezero Size Coorn Treatment Record Sacas Thos 30 80 Driven i 18 - 5/8460 750 Lite A 13 - 3/8820 Lite a 1575 9 - 5 / 85205 2325 Lite A 7862 7803 SH/FT Lite A 530 7772

	WELL CASING RECORD — AFTER REWORK (Indicate Additions and Changes Only)											
c	13 <i>1110</i>	1		1	rome ·	And the factors						
Site	Deen	Socre	Tvee	from	Te	Transment flocard						
30	180	Driven	j		-							
18-5/8	1 460	1750	Lite A		1							
13-3/8	820	1 575	Lite A									
9-5/8	5205	2325	Lite A									
7	7862	530	Lite A	7803	7772	4SH/FT						
			·									

The state of the s		
DESCRIBE REWORK OPERATIONS IN DETAIL	WIRE LINE LOGS.	LIST EACH TYPE
USE ADDITIONAL SHEETS IF HECESSARY	Log Types	Logged Intervals
Trip 2-7/8 tubing Laying		
perforate 7769 - 7772		
run 4-1/2" seal Tite lined tubing		
in hole Injecti on point 7769ft		
perforate 7769 - 7772		

## CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all ettachments and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there ere significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32).

NAME AND OFFICIAL TITLE (Please type or type)

Kyle Barbot, Minefield Supervisor

RE STATE OF THE ST

DATE SIGNED 2-96

SEPA

UNITED STATES ENVIRONMENTAL PROTECTION WASHINGTON, DC 20440

ENCY

AUG 2 9 1998

## WELL REWORK RECORD

Kalium Chemicals 1395 135th Avenue Hersey, MI 49639

MAME AND ADDRESS OF CONTRACTOR Kalium Chemicals 1395 135th Avenue Hersey, MI 49639

STATE MI Osceola PERMIT NUMBER
MI-133-3G-A002 LOCATE WELL AND CUTUME UNIT ON SECTION PLAT - 640 ACRES SURFACE LOCATION DESCRIPTION MOF NW MOF NW WSECTION 26 TOWNSHIP 17N RANGE OW LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT Surface 1314 Location 1314 From (H/S) N Line of quarter section R. from (E/W) Line of quarter tection WELL ACTIVITY Total Depth Sefore Rework TYPE OF PERMIT C Brine Disposal 🗖 Individual 🗀 <u> 7862</u> C Enhanced Recovery GArea Number of Wells 12 Total Depth Aller Rework C Hydrocarbon Storage 7862 XSol'n Mining Date Revent Commenced Lease Name Well Number 4-1-96 1031 Date flavors Completed Kalium Hersey 4-3-96

_	WELL CASING RECORD — BEFORE REWORK												
Carno		1 6	Comone		7514675	And or freque							
Sizə	Decrin	Secret	/ ใ <del>งอง</del>	f from	Te	Treatment Record							
30	80	Driven			1	W VIII							
[18- <u>5/8</u>	460	1/50	Lite A		1								
13 <u>-3/8</u>	820	15/5	Lite A	Short-reliance was Office and									
9-5/8	5205	2325	Lite A										
7	7862	1530	Lite A	7803	7774	4 SH/FT							
!			1										

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G	ismq	<u> </u>	<del>naa</del>	) Parts		And or Francis
Sice	Dentn	Sees	Type	From	Te	Treatment Record
30	80	Driven	1		Ì	
18-5/8	460	/50	Lite A		Ì	
13-3/8	1820	13/5	Lite A			
9-5/8	5205	2325	Lite A			
7	7862	530	Lite A	7803	7772	4 SH/FT
		-	1			

DESCRIBE REWORK OPERATIONS IN CETAIL	WIRE LINE LOGS. LIST EACH TYPE				
USE ADDITIONAL SHEETS IF HELTESARY	Log Types	\$ Looped Interveis			
Trip 2-7/8 tubing and 4-1/2 liner	Porforate	7777-7772			
standing. Perforate ///-///2.					
Rerun tubing. Injection point =					
1112 1000.		<b>+</b>			

### CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32).

IGNATURE

OATE SIGNED

4-4-96

1395

### UNITED STATES ENVIRONMENTAL PROTECTION AGENCY WASHINGTON, DC 20460

AUG 2 9 1996

26. TWNSHIP 17N MANGE 9W

## WELL REWORK RECORD

AND ADDRESS OF PERMITTEE Kalium Chemicals

NAME AND ADDRESS OF CONTRACTOR Kalium Chemicals, Ltd. 135th Ave 1395 Mi Hersey, 49639

NW ASECTION

LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT - 640 ACRES

135th ave.

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PERMIT NUMBER STATE COUNTY MΙ Ocseola MI -133-3G-A002 SURFACE LOCATION DESCRIPTION

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

NW A OF

Surface 314 from (H/S) N Line of quarter section and 50 ft. from (E/W) W Line of quarter section 7862 🖾 Brine Oiscossi

C Enhanced Recovery ☐ Hyerocaroon Storage XSol'n Mining

Kalium Hersey

Total Cepth Before Rework TYPE OF PERMIT 🖸 İndividual Area Number of Wells 12 Total Dapth After Rework 7862 Date Rework Commenced Well Number 2-14-96 Date Rework Completed 2-15-96 1031

Well casing record — Before Rework

Cas	Casing		Common !		751754748	Attric or Francium
Size	Decrn	\$ \$2 <del>-22</del>	Tvos	From	Te	Tresument स <del>ैक्टार्च</del>
30	80	Driven			į	
18-5/8	460	750	Lite/A			
13-3/8	820	575	Lite/A			
9-5/8	5205	2325	Lite/A			
7	7862	530	Lite/A	7803	7776	
1			1		j	

WELL CASING RECORD — AFTER REWORK (Indicate Additions and Changes Univi

	Casino		İ	Carrow	?	Perroralisma ·			1	Abs or Frances		
1	Sizo Der		Secus	Ì	ใ <b>∨อ⊎</b>	from		To .			रिष्ट्रशासकार में स्टब्स्ट	
	30 <u>l</u> 80		Drive	n								
	18-5/8 460	)	750	1	Lite/A	,,	1	303			ALEXANDER OF THE PROPERTY OF T	
Į	13-3/8 820	)	575	1	Lite/A		1					
Ĺ	9-5/8   520	)5	2325	1 .	Lite/A		1				All the second	
į	7 1 786		530	L	ite/A	7803	)	7774	4	SH/FT		
Ĺ				$\overline{}$				•	•			

DESCRIBE REWORK OPERATIONS IN DETAIL WIRE LINE LOGS. LIST EACH TYPE USE ADDITIONAL SHEETS IF NECESSARY Log Types Looged imervers Trip 2-7/8 tubing and 4-1/2 standing. Periorate 7774 7774-7776 perforsta Rerun tubing. Injection point

## CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment (Ref. 40 CFR 144 32).

NAME AND OFFICIAL TITLE Please type or critis Kyle Barbot, Minefield

Casing

SIGNATURE Supervisor

7-16-96

DATE SIGNED

Hersev, MI

UNITED STATES ENVIRONMENTAL PROTECTION AGEN-

WASHINGTON, DC 20460

## WELL REWORK RECORD

AUG 2 9 1996

ADDRESS OF PERMITTEE Kalium Chemicals Ltd. 1395 135th Avenue

MAME AND ADDRESS OF CONTRACTOR Kalium Chemicals, Ltd.

1395 135th Avenue 49639 Hersey, MI

LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT - 840 ACRES

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STATE COUNTY Osceola ΜI SURFACE LOCATION DESCRIPTION

PERMIT NUMBER MI-133-3G-A002

MOF NW MOF NW MSECTION 26 TOWNSHIP 17N RANGE 9W SW LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

Surface 1374 Number of quarter section

WELL ACTIVITY	Total Depth Before Rework	TYPE OF PERMIT	
☐ Brine Oispos≥l	7862	☐ Individual	
C Enhanced Recovery	Total Depth After Rework	XXAres Number of Wells12	
☐ Hydrocarbon Storage	7862	I LANUAGE OF ASSIS	
KSolin Mining	Date Rework Commenced	Wall Number	
	12-19-95		
	Date Rework Completed		
Kalium Hersey	12-22-95	1031	

WELL CASING RECORD - BEFORE REWORK

Cas	ing	Con	lent	Performonia		Acid or Fracture
Size	Dearn	Sacks	Îvpa	From	To	Treatment Record
30	80	Driven				
18 <u>-5/8</u>	460	750	Lite/A		VOICE AND A SECOND	
13-3/8	820	575	Lite/A	7		
9-5/8	5205	2325	Lite/A			
7	7862	530	Lite/A	7803	7780	
			i			

WELL CASING RECORD - AFTER REWORK (Indicate Additions and Changes Only)

Cas	· •	Ca.	ment		78 (1 <del>4718</del> 1	Acid or Fracture
5:19	Osotn	Sacas	T-900	From	To	Treamment Record
30 [	80	Driven	1			
18-5/8	460	750	Lite/A			
73-3/8	820	L 575	Lite/A			<u> </u>
9-5/8	5205	2325	Lite/A			
7	7862	530	Lite/A	7803	7776	4 SH/FT
1			1		I Total	•

DESCRIBE REWORK OPERATIONS IN DETAIL WIRE LINE LOGS, LIST EACH TYPE USE ADDITIONAL SHEETS IF NECESSARY Log Types Logged Intervets 7768-7600 PFC Trip 2-7/8 Hydril and injection 7776-7780 liner. Perforated 7" from 7776 to Perforate 7780 feet. Run 2-7/8 eve and injection liner in hole. Land tail

pipe at 7795.

## CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32).

NAME AND OFFICIAL TITLE (Please Nine of print)

Kyle Barbot, Minefield Supervisor

12-23-95

STATE OF MICHIGAN
DEPARTMENT OF NATURAL TESOURCES
GEOLOGICAL SURVEY DIVISION
PO BOX 30028 LANSING, MICHIGAN 48909 TYPE OF WELL (arter completion) PERMIT NO DEEPENING PERMIT NO. Solution Mining FIELD/FACILITY NAME Potash RECORD OF WELL DRILLING OR DEEPENING Hersey Potash USE APPRIOPRIATE BLOCKS, FOR ITEMS NOT LISTED SUBMIT ATTACHMENTS. WELL NAME & NUMBER REQUIRED BY AUTHORITY OF: ACT 315, P.A. 1959, AS AMENDED (Submit 2 copies within 60 days of completion.) ACT 61 P.A. 1939, AS AMENDED (Submit 2 copies within 30 days Kalium Hersey # 1031 SURFACE LOCATION NON-SUBMISSION AND/OR FALSIFICATION OF THIS INFORMATION MAY RESULT IN FINES AND/OR IMPRISONMENT. SW 1/4 of NW 1/4 of NW 1/4 Section 26 T 17NR 9W NAME AND ADDRESS OF OWNER TOWNSHIP COUNTY Kalium Chemicals, Ltd Hersey. Osceola 1395 135th Avenue FOOTAGES: NORTH/SOUTH EAST/WEST Hersey, MI 49639 1314 Ft. from N Line and 66 Bt. from W Line of 1/4 Sec. NAME AND ADDRESS OF DRILLING CONTRACTOR
McLachlan Drilling Company SUBSURFACE LOCATION (if directionally drilled) SW 1/4 of SE 1/4 of NW 1/4 Section 26 T 17NR 9W P. O. Box 548 TOWNSHIP COUNTY Evart, MI 49631-0548 Hersey O**s**ceola DATE DRILLING BEGAN DATE DRILL COMPLETED DATE WELL COMPLETED FOOTAGES: NORTH/SOUTH EAST/WEST 9/6/94 Line and 179 Ft from E Line of 1/4 Sec. 10/15/94 390 Ft. from S Incomplete TOTAL DEPTH OF WELL FORMATION AT TO FEET DRILLED - ROTARY TOOLS PROD. FORMATION(S) FEET DRILLED - CABLE TOOLS Driller 7970 1097973 Al Salt From NA Tα From Surface To NA DATE OF FIRST INJECTION INJECTED FORMATION SOLUTION FORMATION ELEVATIONS Al Salt K.B.1160.8ft. R.F.1158.8ft. R.T NA 1147.0 CASING, CASING LINERS AND CEMENTING, OPERATING STRINGS PERFORATIONS SIZE WHERE SET CEMENT FT. PULLED NUMBER OPEN DATE HOLES 30" INTERVAL PERFORATED 80 Driven 0 YES NO 18-5/8" 460 750\_sks 0 13-B/8" 820 575 sks 0 9-5/8" 5205 2325 sks 0 7" 530 sks 7862 0 NONE GROSS PAY INTERVALS ALL OTHER OIL AND GAS SHOWS OBSERVED OR LOGGED **FORMATION** OIL OR GAS! FROM TO Oil WHERE OBSERVED (X) **FORMATION** OR GAS DEPTH Gas F# Up Odor Pits Log. p<del>le</del>s Line NA NA STIMULATION BY ACID OR FRACTURING WATER FILL UP (F.U.) OR LOST CIRCULATION (L.C.) (X) INTERVAL TREATED MATERIALS AND AMOUNT USED DATE **FORMATION** F.U. L.C. DEPTH AMOUNT G. Drift 460 1000 bbl NONE NONE MECHANICAL LOGS, LIST EACH TYPE RUN DEPTH CORRECTION DEVIATION SURVEY PLUGGED BACK BRAND (X) LOG TYPES LOGGED INTERVALS DEPTH CORRECTION RUN AT DEGREES YES NO DEPTH MI WIreline CBL 2980~750 2650 XX Schlumberger GR-Caliper 7970-5203 4700 23 Wirdlihe GR Correlation 7836-739 5800 20 PRODUCTION TEST DATA Oll - Bbls/day GRAVITY - PAPI COND. Bbls/day GAS - MCF/day WATER - Bbls/day H<sub>2</sub>S - Grains/100 cu ft BHP AND DEPTH NA NA NA NA AM RESPONSIBLE FOR THIS REPORT. THE INFORMATION IS COMPLETE AND CORRECT DATE NAME AND TITLE (PRINT) SIGNATUR Minefield

Lawrence E. Bean,

Supervisor

3/28/95

## FORMATION RECORD

(ATTACH ADDITIONAL SHEETS IF NECESSARY)

ELEVATION USED	GEOL	OGIST NAME:	TOPS TAKEN FROM:				
KB 11	60.81		XX DRILLERS	LOG	SAMPLE LOG		
		FORMATION (TYPE, COLOR, HARDNESS)			FORMATION		
FROM	TO	Y DRILLED, ADD TRUE VERTICAL	FROM	то	(TYPE.COLOR, HARDNESS)		
DEPTH FORMA	TION TOPS WHE	ERE APPROPRIATE	Ji				
0	711	Drift	lł				
711	1450	Michigan Group	11	<u>.</u> "			
1450	1575	Brown Lime	ii	İ			
	1710	Stray Sand		ł			
-	1829	Marshall	<b>l</b>	ļ			
	2570	Coldwater Shale	11				
	3021 3251	Sunbury Shale Antrim Shale	}}	ľ			
	3300 **	Traverse Formation					
	3668	Bell Shale	ii .	1			
	3993	Dundee					
	4251	Detroit River Anhydrit	: <b>L</b>				
	4574	Detroit River Salt		<b>,</b>			
4574	4864	Detroit River Sour	li .				
	5103	Massive Anhydrite					
_	5305	Amhearstburg	<u> </u>	<u> </u>			
	5403	Sylvania	IF WE	LL WAS CO	RED, ATTACH CORE DESCRIPTION		
	5557 5892	Bois Blanc Bass Island		DRI	LL STEM TEST DATA		
_	5930	Salina G Unit	·		The second secon		
	6523	F Salt					
	6645	E Unit	İ				
_	6685	D Salt	H				
	6820	C Shale	i				
	7135	B Salt					
	7264	A2 Carbonate					
	7586	A2 Salt					
	7645	Al Carbonate	Į.				
7645	7970	Al Salt					
	TD						
	2506	Traverse Lime					
**3300	3596	Traverse Lime					
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				GEOLOGI	CAL SURVEY USE ONLY		
			REVIEWED BY:				
			DATE OF REVIEW:				

## ROKOS CONSULTING INC.

DAY: SUN

DAILY DRILLING REPORT DATE: 10-16-94

ERATOR:K4 u	n CHem	cal				
TBIL NAME: KALV. 7816' PBTD Depth	n Yerre	(031	 STATUS: _	RIG:	Mgc =4  Released	
YS: 45 Report Day No.	Orill Ra	Footage CutL te min/ft	AST CSG: Z	,	7862′ П. Depth	0.C. = 5600)
D:	₩-ppg	Vis-sec	W Lcc	Ci-mg/i	LCM-lb/bbl	Solids %
41/2 F.N. 2 R.U. 13/4 R.U. 153/4 N.D.	MWL 1 HIR 113 4 Bari C	RUN CO	School 2its	1 121).		
	<del></del>	<u> </u>	6:30 An 10-11			
					Formation	Tops
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			CONTRACTOR CONTRACTOR	·	<u> </u>	- Subsequence - 10 to 10
	- Company of the Comp				@ .	
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@ L	CASING	12 45 1	Direction T.V.D	. 7 <i>70</i>	74/122 788 6	96 5eT
GL = RE = RE = RE = RE = RE = RE = RE = R	2786Z 190 3× H 5%	Cente	7840-799 27% Ket 1 and 111/4 ? tand Pho	1 - 79 5 1 1/4 % Ha/A	11' Hali B & 1322 1 340 222 27% KG	ented wy

ROKOS CONSULTING INC.

DAILY DRILLING REPORT

DAY: <u>5A</u>T DATE: <u>10-15</u>99

OPERATOR: KALUIM CHEMICAL RIG: MAC 1031 WELL NAME: KALLIA 39 7973 LTD 7970 STATUS: \_ Depth Footage Cut 39 (T.O.C. = 5,0) 5203 LAST CSG: . DAYS: \_ Report Day No Drill Rate min/tt Depth MUD: \_\_\_535 189,000 10,3 LCM-lb/bbl Solids % Gradient-psi/ft Wt-poo Vis-sec W.L.-cc Ci-ma/i 11/2 clean Hale Tain 105705 1112 cire Hole clem HOURLY BREAKDOWN STRING RAN 71/2 Bone Hole Geometru 7973' <del>10</del> FM 41/2 RU C 34 Formation Tops @ DEVIATION SURVEYS Œ Œ M.D. T.V.D N or S Drift Direction V. Sec E or W STATION ELEVATIONS RF = DORD LAST RT = KB -

ROKOS CONSULTING INC.

DAILY DRILLING REPORT

DAY: <u>FP ONV</u>

OPERATOR: KALIUM Chem.CAL RIG: MDC WELL NAME: KALION HERSEY 60 CORE 5 4 DRL9 STATUS: Depth Footage Cut (T.O.C. = Supp = 1) LAST CSG: . DAYS: \_ Report Day No Drill Rate min/ft MUD: <u>-35</u>35 LCM-lb/bb! Gradient-psi/ft Wi-ppg 7788 to 78/2 WILLARE HOURLY BREAKDOWN 7816 to 7876 WI CORE BB15 44 Openin CORS 4 CORB 3 775 to Bation Formation Tops DRLG 7876 to7931 DEVIATION SURVEYS V. Sec E or W M.D. T.V.D N or S Drift Direction STATION ELEVATIONS RF -ORD LAST AT =

DAILY DRILLING REPORT

DAY: <u>76104.6184</u>

			- DA	L, Dinemino			DATE	. <u> </u>	, , ,
OPER	RATOR: KAlu	mi ChiEm	rica!						
WELL	NAME: Kal	· · · · · · ·	RSEL I	1031	RI	G M	C. #	4	
	7817		82		TUS:	100	PEINA	22	<u> </u>
	Dépth		Footage Cut				-	مکو کی	
DAYS	·	1-	ate min/ft	LAST CSG:	95/8	" <i>e</i>	5203	(T.O.	C.=5URF
J J	Report Day No.	Drill R	ate min/ft	LA31 030.	Size	_	Depth		
MUD:		/0,3 Wt-ppg	<i>33</i>		<u>8                                    </u>	188000			0.9
	Gradient-psi/ft	Wt⊷ppg	Vis-sec	W L	C	Cl-mg/l	LCM-lb/bbi		Solids %
1	1/2 - P1	ckup do	m AVG. V.	ו בעים מ	3 <i>B/s</i>				
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ă i	1/2 -	CORINA	# 1						
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BREAKDOWN	1	FIX UT		# 1 ·	224				
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ا لي	74	<u> -180</u>					Forma	tion T	ops
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□ <b>~</b> ,  -	3 <b></b> .	M.D.	Drift	Direction	T.V.D	V. Sec	N or S	· vs	E or W
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DAILY DRILLING REPORT

DAY: <u>WEd</u>

DATE: <u>10-12-94</u>

OPER	ATOR: Kal	in Ch.	5 michl				DA14. 4	
	NAME: KA!	1-101 H	ERSEV	1031	RIG	MD	2 #4	
	7735		57/	STAT	'US:	MAKS	up Col	RE ASSY
DAYS:	Depth 36		Footage Cut  3 Ite min/ft	LAST CSG:	95/8	<b>_</b> "	<u>Г203 П.</u>	/ (کرازمن2 = .0.C
MUD:	Report Day No 520 Gradient-psi/ft	Drill Aa 10.2 Wt-ppg	ite min/ft	<u> 4.7</u>	Size /-	2001	Depth  LCM-lb/bbl	Solids %
_			Vis-sec	W LCI				501105 %
-	3/2	DRL9						
-	1/2_	SER RIC						
_		Sur.150				······································		
- <u> </u>	33/2	DRLa						
<u> </u>	3/4	C120 + 0	 پيرا دائم رخ	1 1 20 40 1	3,7			
00	7-	DELC					2 2 7 7	
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™ KB					war			
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DAY: TUESDAY

DATE: 10-11-54 DAILY DRILLING REPORT

OPER	RATOR: KALI	im Cheni	-41					,
WELL	NAME: Hali	year HER	454		RIG:	11.00	. #4	
	_7/04		492 ootage Cut	STAT		DRLS	1	
	Depth				00/			_
DAYS	Report Day No	<u> </u>	3 te min/ft	LAST CSG: _	95/4	_"@ <u>_5</u>	203 T.	0.C. = Supp. (5)
MHD.	1525	). Orill Ra <b>/</b> ろ。/	te min/tt	N	Size . /S	32 00 <u>0</u>	Depth	0.7_
	Gradient-psi/ft	Wt-ppg	Vis-sec	W.Lco	; ci	-mg/!	LCM-lb/bbl	Solids %
Ī	11/2 T	1.4						
:	2	DRAG				-		
_	1/2	CIRI -	16.450					
- :	4	DAGE						
<u> </u>	2	Dur KM 5	/					
ĝΪ	11/2 .	+22+ 1	· · · · · · · · · · · · · · · · · · ·	( ) ( ) <del>, •</del> /	NO V			
EA	1/2 .	t-1#						
BA	21/2	DALS			·			
7	3:111	Du, 3,3/=	1	charina	4NIFALA	choch 6	Formation	Tops
HOURLY BREAKDOWN			KElly	1 AUG TRA	1115 TD 3	000 Del	Dunta	6645
H	1/2	714					Shale	
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ī	1/2	5,23,150						
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9 2  -	@	M.D.	Orbit	Direction	T,V,D	V, Sec		E or W
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SV		6625 68 11	101/4	200	6591	1263	1002	777
9	F =	5 2 3 3						
ELEVATIONS	T =	6997	71/2	<u><?3.£</u></u>	6775	1292	1026	780
⊞ K	3 =	040 TYPE 1				· · · · · · · · · · · · · · · · · · ·		
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DAY: MONDAY

DATE: 10-10-94 DAILY DRILLING REPORT

OPER	ATOR: KAL.	in Cher	nical				υλτ <b>ι.</b> <u>Γ</u>	
	NAME: Kal			7/	RIG	: _ MID	C. # 4	<u> </u>
	6 12	4	140	STAT	rus:	_ + I H	,	12 1212
	Depth		ootage Cut		0=/0		_	
DAYS:	34			LAST CSG:	95/g Size	<u> </u>	<u> 253 (T.</u> Depth	0.C. = <i>5u ሊቶ</i> )
MUD:	Report Day No.	Drill Ra	te min/ft	N/		82 200	Depth	1.4
WOD	Gradient-psi/ft	Wt-ppg	Vis-sec	<u>₩.Lc</u>	c C	l-mg/l	LCM-lb/bbl	Solids %
	11/2 -	DRLa.						
	1/2 -	CIRC. \$	SuRiFu	/				
	2.	17810	•					
	6%	TOOH	Chares	F BIT +	08111.49	#55V	DRAP HS	VTIH
\$	1/2	CIPC 4RI	12 m	101		/	,	,
0	5 DK	1/5						
Ă	1/4	4 ペンミュ						
BAE		DRLa						
<u> </u>	1/-	<del></del>	Person De				Formation	Tops
HOURLY BREAKDOWN	11/2	DELS	1 27 377				UNIT @	6500
오		WAR F A	· * *	 າ ຼ.			_	
i-	11/2	TOOH		N DP 5	227/		@ .	
_	1 /2	100#	<i>TOIF !</i>	N QF J				
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<u> </u>					STV - ST-20%-176		<b>.</b> .	
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VEY	@				v 4 1			
SURVEYS	@	<u> </u>						
₽ <b>3</b> 3		M.D.	Crit	Direction	T.V.D	V. Sec	N OCS	(Epr W
.GL	_ =	6727	20	533E	6027	1/0/	862	686
S RF	* =	4 6227	18	5755	4025	1170	918	<u> </u>
ELEVATIONS						-,		
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DAILY DRILLING REPORT

DAY: <u>548</u> DATE: <u>10-9-94</u>

WELL DAYS	RATOR: KALLAN  NAME: KALLAN  LO 17 1  Depth  33  Report Day No.  520  Gradient-psi/ft	# # # # # 5 # 5 # 5 # 5 # 5 # 5 # 5 # 5	103	/ STAT LAST CSG: .	TUS:	ORL.9 _"@	F 54 5203 Depth  LCM-lb/bbi	(T.O.C. = SUR F	<u>-</u>
HOURLY BREAKDOWN	5 + 00 H 1/2 SERMA 7 DR19 3- Pull 1/2 RIG 3 1/2 DR16	ERIC INA  S  S  S  S  S  S  S  S  S  S  S  S  S	Rig LA	Atom	0		S UN.T	tion Tops @ 5892 @ 5930 @	
ELEVATIONS SURVEYS	OORD LAST STATION	M.D. 58 98 60 78		Direction 5.27 € 5.27 €	T.V.D 57// 5852	v. Sec 989 1039	Nor.S.	© (E) W (621	

DAILY DRILLING REPORT

DAY: <u>SAT</u> DATE: <u>10-8-94</u>

OPER	ATOR: KALINA	ChEnni	14.5				D/., C	<u> </u>
WELL	NAME: KAI,			<u>103</u> /	RIG:		. /	
	<u>5825 </u>		334 <u> </u>	STAT	US:	TOOH	FOR B	<u>i</u>
DAYS:	Depth:	2-		LAST CSG:	95/ç. Size	_"@ <u>_5</u> .		( <u>ت جرما ک</u> = .0.C.
MUD:	Report Day No.	Oniii Ra O, ご Wt-ppg	te min/ft	<u></u>	<u> </u>	<u>くっとへ</u> -mg/l	Depth LCM-lb/bbl	Solids %
		) <u> </u>	415-50C				<u> </u>	
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	71/1 - 1	<u> </u>	<u> </u>					
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BREAKDOWN	3 3/1	7to04	Chance	c B, + 1	19 - 18 F }	22.57 1	3,	. , , , , , , , , , , , , , , , , , , ,
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N PF			10,	5 PU 5	5507	437.4	<u> 7/9</u>	<u>.55)</u>
ELEVATIONS	TSY	570	-1	3.74.5	4:22	944	753	576
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DAILY DRILLING REPORT

DAY: FRIdAU

DATE: 10-7-94

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OPEF	RATOR: KALIA	m Chem	ICAL					
	NAME: KAlina			2.37	RIG:	MOC	. #4	
				TATS	'US:	DPI.a	BALO	
	5441 Depth		Footage Cut			,		
DAYS	: <u>3/</u>	/	2	LAST CSG:	95/8	_"@_ <u>_</u> 5	703 M	0.C. = Six/ )
_	Report Day No	Drill FI	ate min/ft		Size		Depth	4.5
MUD:	# Gradient-psi/ft	9,6 W1-ppg	28		125		LCM-lb/bb!	<u>Ø 3</u> Solids %
-	Gradient-pault	vvi-ppg	VIS-50C			<u> </u>	CCM-10/001	201102 %
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į	21/2	IIPNIE WI	TECT 1	31, nd RAM	5 % 10	DO PSI	OK	
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BREAKDOWN	1//			ENT FO	6 TO L	235		
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	B . 0	! <b>!</b>		<b>*</b>				
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DAY: \_ THUS ROKOS CONSULTING INC. DAILY DRILLING REPORT OPERATOR: KAlium citemical MDC #4 KALIUM 1031 WELL NAME: RIG: \_\_\_\_ + weld 5-210 STATUS: WOCI Depth Footage Cut 95/3 5203 (T.O.C. = SURF) DAYS: \_ 30 LAST CSG: \_ Report Day No. Orill Rate min/ft MUD: \_ BRINE Gradient-psi/ft W.L.-cc Cl-mg/l LCM-lb/bbl Solids % Wt-ppg Vis-sec 20 UP MACE NUI toca D 22 0 top/ PRASSIER. NO 2 -Mich HOURLY BREAKDOWN DU. CLOSEING DIED DROD WALKAN to 1500PS! & PEFFERE CAS. (LAND Ris Drive Homes Woc. MIDPLE DOWN Formation Tops 400. @\_\_ CAT OFF 189-1376 1 956 Dat 956 t 13% \_ @ DEVIATION SURVEYS M.D. Oriit Direction ..../T.V.D V. Sec NerS E or W MIX 9755X Houseline & Fillow W/ OORD LAST STATION 100 SX STAL CE GL = ELEVATIONS PL- DISPLACE W/BRING 9 Pm 10-5-64 Chiment PLACE (c) of comen to SURF CIRC TRACE RT =

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DAY: WEd

DATE: 10-5-79
Anc #4
CSG 95/8"
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5205 (T.O.C. = ? )
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LCM-lb/bbl Solids %
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total 5204' SHOE @ 5203'
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22-2878.3057.3009'
22-2878 . 3057. 3009'
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ROKOS CONSULTING INC.
DAILY DRILLING REPORT

OPERATOR: KALIUM CLEMICAL RIG: MDC #4 WELL NAME: KAligan HERSEV DRL9 267 5/12 AMMLERST BURG STATUS: \_ Depth Footage Cut 5-6 (T.O.C. = 51,2 f) LAST CSG: \_ DAYS: Report Day No Drill Rate min/tt Gradient-psi/ft 9,9 NC. 15% 000 0,90 MUD:\_ W.L.-cc Çl-mg/I LCM-lb/bbl Solids % Wt-ppg Vis-sec SURVEY HOURLY BREAKDOWN DPLa Formation Tops MASS ANKA 5103 Œ @\_ DEVIATION (E)or W M.D. Orift Direction T.V.D V. Sec 381 1,10 223/4 538E 4750 4855 ELEVATIONS = 15 690 38 5 430 4951 CORD LAST

ROKOS CONSULTING INC. 6 DAY: MON.

DAILY DRILLING REPORT DATE: 10-3-84

OPEF	BATOR: KALIUM	Chemical					
WELL	NAME: KAling	HERSEY	1031	RIG	MOC	, #4 <u> </u>	
-	4845 Depth	245	- STA	ATUS:	DRL	a DET	RIVER SOUR
		Footag	e Cut		T.91	cked Hosy	
DAYS	: <u>27</u>	5-6	LAST CSG:	133/8	" @	820 m.	D.C. = 542だ)
	Report Day No.	Drill Rate min	/tt	Size		Depth	
MUD:	「ラユS Gradient-psi/ft	10.1	29 N Vis-sec W.L.	<u>C</u> 16	<u> </u>	:	
<del>.</del>	<u> </u>	Wi-ppg	Vi\$ <del>-se</del> c W.L.: - <del></del>	-cc G	-mg/i	LCM-lb/bbi	50li0\$ <del>%</del>
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BREAKDOWN		nsH					
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HOUPLY	11 1/2 DR	20				Formation	Tops
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DAY: \_SUN\_\_\_ ROKOS CONSULTING INC. DATE: \_ 10-2 94 DAILY DRILLING REPORT OPERATOR: KAlium CHEMICAL ±41 RIG: MDC WELL NAME: Kalium HERSEY 1031 4600 392 DET. RUSA SAIT Depth Footage Cut 133/p "@ 26 820' DAYS: سے - ق (T.O.C. = 1,000) \_\_\_ LAST CSG: \_ Report Day No. Depth Drill Rate min/ft 504 78000 MUD: \_ NC 1,4 Gradient-psi/ft ₩i∙ppg W.L.-cc Ci-mg/l LCM-Ib/bbl Solids 5 Vis-sec SER-GAUGE UP NEF WASH & READY Bottomx 1/2 DRIS HOURLY BREAKDOWN + SEARUEV 10-DRLS CIR + SURJEV 1/2 DRLa Formation Tops DET RUSESAG 43 15 DET RUSISHPA 4596 @ \_ @ DEVIATION SURVEYS Œ Ø, M.D. Orift

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DAILY DRILLING REPORT

DAY: SAT

ERAT	TOR: KALIUM	n Cham	البرس	,		DATE	. <del>70 7 7,</del>
LL N	AME: HALIGO	m HER	SEV 1031	_	RIG:	MCD A	r 4
4	1207		377'	_ STATUS:	TIH	-/ Build	ASSO,
	Depth	F	Footage Cut	_ GIAIGG.		7	0
YS: _	25			ST CSG:	/3 <sup>3</sup> /8_"@	820	(T.O.C. = SuaF
	Report Day No	Drill Rat	te min/ft	si 000s	ize	Depth	
D:	468	9.3	24	<u> Nr.</u>	<u> 78,000</u>		1.3 (0)
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10	114 Dala	JAPA					
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DAILY DRILLING REPORT

DAY: FRIGAY
DATE 9-30-94

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	ATOR: KALIUN				D: 6	* * *	ار جد را	
	NAME: KALILI	1111 HERS			HIG	: <u> </u>	0 F4	
	3830	<del>_</del>	408	STA	TUS:	DRLa		
- • • • •	Depth 24		Footage Cut		13 1/2		07	است سرحت
DAYS:	Report Day No.	_ ~	ate min/ft	LAST CSG:	Size	<u> </u>	<u> </u>	<u>( ۳۰ , ۵.C. = ۲.۶ یک</u>
MUD:		9.25	29	NC	: 7/	1,000	<del></del>	1.8(our)
	Gradient-psi/ft	Wit-ppg	Vis-sec	W.L	c C	î-mg/l	LCM-lb/bbl	Solids %
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<u> </u>	STS	3601	201/2	<u>5395</u>	3574	175	122	126
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DAY: <u>thea</u> 9-19-94

			DAILY !	DRILLING RE	PORT		DATE: _	9-29-74
		Jun Che		<del>.</del>		فصد الم		<b>Y</b>
WELI	NAME: KA 3422 Depth	Lum HARS	162	_ _ STATU	RIG:	DRILL	1N.9	Lime
DAYS	•	No. Orill I		ST CSG:	133/g/ Size	_"@	<u> විවර (T</u> Depth	.O.C. = 500 (F)
MUD:	Gradient-psi/ft	9-1 Wit-ppg	29 Vis-sec	<i>₩.</i> Lcc	<u>66</u>	gri	LCM-lb/bbi	Solids %
i	5/2	DRLG W/	<del></del>	3260- 3				
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ð.	21/4	<u> </u>	LAY DOW		TS DP.		<b>1</b> ,,	
Α	21/2	KEAM	motor 1	Ca M				
HE/	5-314	DRIG	<u> </u>	Lorked	4551		<u>.</u>	
<b>63</b> }	13/4	SER KI DRLS	<del>~</del>				Formatio	a Toos
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ЩK	B =	ORD LAST			<del></del>			·
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DAILY DRILLING REPORT

DAY: WEd DATE: 9-28-94

OPERATOR: KALIUM Chemical "1031 RIG: NOD #4 WELL NAME: KAliam DRLS W/ MISTOR 3260 210 STATUS: \_\_\_\_ Depth Footage Cut 1338 (T.O.C. = 548F) DAYS: \_ 5-7 LAST CSG: \_ Report Day No. Drill Rate min/ft MUD: 484 Gradient-psi/ft 49000 3, 7 Ci-mg/l LCM-Ib/bbi Solids % Wt-ppg Vis-sec W.L.-cc The H Chret 54442 1/2 3030 TAR YENSON DRLG HOURLY BREAKDOWN INP STEERING TOOKS motor 3260 3050to.5-3030 Formation Tops TR. FERMAGON \_\_\_@\_ @\_ @ DEVIATION À M.D. Orift T.V.D V. Sec N or(S) (E) w Direction 26 STATION 21 3095 7,9 3094 5475 ELEVATIONS BY THE BY 31 12 3157 11,8 552E 3155 22 3216 46 3220 15,5 540E

DAILY DRILLING REPORT

DAY: **TUES**DATE: 9-27-90

OPER	RATOR: KALIU	m Chemic	41				DATE	
	NAME: KAL			7	RIG:	M	C.D F	*4
	TDC 3050=		_	_ _ STATU			C Eng Si	<del>,                                    </del>
DAYS	Depth 3 /	Fo	otage Cut	ST CSG: _	122/		820	(T.O.C. =5 <i>U.R.F.</i> )
MUD:	Report Day No.	Drill Rate	min/ft 3		Size		Depth	. 4
	Gradient-psi/ft	Wt-ppg	Vis-sec	W.Lcc	Ci-f	ng/i	LCM-lb/bbl	Salids %
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BREAKDOWN	4 - 7	IN PI	40 20	STS OF	D.P.			
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S	L =	SEY PL	<u>,                                    </u>	00 W/A	All bullo	<u>,, 22</u>	55x CL	85 <u>77                                   </u>
ELEVATIONS	Fa	3% 506 <u>Dis Place</u> (0) 1/30	<u> </u>	h.air	12. CRR3	- KUN	1 HOBER!	F. W. DHEND IN PLACE
N FT	T =	<u> </u>	1 hit \$17	100.27 B	<u> </u>	88/2	CEMPS.	it IN PLACE
3 K	B = 9	<u>CO2 1130</u>	9-12	6-94				
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DAILY DRILLING REPORT

DATE: 9-26-94

OPERATOR: KALIUM ChENICAL RIG: MCD WELL NAME: KALIUM HERSEV 71031 28/00 FISH DOWN-DAS Footage Cut 133/8 (T.O.C. = 50x05) DAYS: \_ LAST CSG: \_ Report Day No. Drill Rate min/ft Deptn 2,7 MUD: 475 Gradient-psi/ft Solids % W.L.-cc Ci-mg/l LCM-lb/bbi Wt ppg Vis-sec 24 41-1 + Puch Fish Hours Hole 1362-+0 HOURLY BREAKDOWN Formation Tops C @\_ DEVIATION 2-25-94-000 Son TAX ON M.D. Dritt Direction T.V.D V. Sec Nors E or W OORD LAST STATION ELEVATIONS SA THE SA

DAILY DRILLING REPORT

DAY: SCIN

DATE: 9-25-OPERATOR: HALLAN Cheneley WELL NAME: KALIUM HORES MCD RIG: \_ STATUS: \_ Depth Footage Cut (T.O.C. = Sap /2) DAYS: \_ LAST CSG: \_ Report Day No. Drill Rate min/ft 4 3 MUD:\_ Gradient-psuft Wt-ppg Vis-sec W L.-cc Cl-mg/l LCM-lb/bbi Solids % tonH -AUDORN 11-this MAKEUR NOR FRIT BACKOFC 14, BIT +EIDES 1/2 7-HOURLY BREAKDOWN 1200 =-July of my 12.7 7 1700 J-55-ON COT 7 ON DISTARY 6-11-5 DN'S A. 1 11.07 KAN OF HE Z, ch Formation Tops 1/2\_ Toon Œ \_ 3/./ + Burnis SAR +TARS Day = Mys \_@ DEVIATION SUIIVEYS Œ M.D. Drift Direction T.V.D V. Sec NerS Ect W STATION ELEVATIONS RF COORD LAST AT = KB -

DAY: 5.47

			DA	ILY DRILLING	NEFORT		DATE:	1.23 17
OPE	HATOR: _KALIV	n CHemi	cal_					
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-	Depth		rootage Cut			,	•	
DAYS	S: <u>I B</u> Report Day No	a	?	LAST CSG:	133/8	<u></u> @	820 (	T.O.C. = SUAF
	Report Day No	Drill Ra	ate min/ft		Size	1	Depth	
MUD:	Gradient-psi/ft	9. <i>0</i> ₩t-ppg	2 / Vīs-sec	W.L0		i-mg/i i	.CM-lb/bbi	Solids %
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DAY: FR,

DATE: 9-23-94

			DATE:	
OPERATOR: Kalium CHemical				
WELL NAME: Kalium Hessey 1031	RIC	G:	DC #4	
3165 0	STATUS:7			//
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Report Day No. Drill Rate min/ft	Size /		Depth	4.6
MUD:478 9.2 36 Gradient-psi/ft Wt-ppg Vis-sec	W.Lcc (	<u>රකයට</u> Classii	LCM-lb/bbl	Solide ûn
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DAILY DRILLING REPORT

DAY: <u>Theu</u>.

DATE: <u>9-22-94</u>

OPER	RATOR: KALIG	um Ch & M.	/عرمر.				J	
	. NAME: <u>ЖЖи</u>			1	RIG	i	20. #4	
	ිර ය Depth		© Footage Cut		TUS:	LAY DOW	ar WASh	
DAYS	: 16 Report Day No.	Drill	Rate min/ft	LAST CSG:	133/s/ Size		20 (1.0 Depth	D.C. = 5418 <sup>(2</sup> )
MUD:	Gradient-ps/ft	9, 2 Wt-ppg		W.Lc		55 660 D-mg/l	LCM-ID/DDI	<b>3</b> , 9 Solids %
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BREAKDOWN	3/2	J40 -	N FISH	<del> </del>				
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DAILY DRILLING REPORT

DAY: WEG

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	RATOR: KAlous				A6	+ //	~
WELL	NAME: Kaliuz	O HERS	<u> </u>		RIG: ///	0 # 4	JER FISh
	302/ Depth		Footage Cut	STATUS:	TRX T	0 95-1 7	JER FISH
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בואט	Report Day No.	Drill R	ate min/ft	AST CSG:	Size @ _	Depth	
MUD:	Gradient-psi/ft	9.1	34	W.Lcc	<u> 58 //80</u> Climg/i	vicini alikanji saita iliana ila manija	4,8
_	Gradient-psi/ft	Wt-ppg	Vis⊷sec	W.Lcc	Cî-mg/i	LCM-ib/bbl	Solids %
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DAILY DRILLING REPORT

DAY: <u>TUES</u>
DATE: <u>9-20-94</u>

OPER	RATOR: KALIUM	ChEMIC	:#/	_		2,	
	NAME: KALIYA			_	RIG: 💆	MCD. A	14
	302/ Depth	_ r		_ STATUS: _	XXIX	Muc	
	Depth	Fo	otage Cut	- ?/	<b>'</b> C	0.5	
DAYS	Report Day No.	Drill Rate	LA	ST CSG:	<u>&amp;                                    </u>	メスク (T Depth	.O.C. =54RF
MUD:		9,3	3./	<i>N</i> / WL-cc	64300		_3./
_	Gradient-psi/ft	Wt-ppg	Vis-sec	W.Lcc	CI-mg/I	LCM-lb/bbl	Solids %
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DAILY DRILLING REPORT

DAY: MON

DATE: 9-19-94 OPERATOR: KAlium CHemical RIG: MAC #4 WELL NAME: \_Kalium 1031 3/65 STATUS: MAKE UP SY TAKS Depth Footage Cut 133/8 "@ (T.O.C. = SUAF) \_\_ LAST CSG: \_ Report Day No. Qrill Rate min/ft MUD: .442 Gradient-psifft Ci-mg/i LCM-lb/bbi Wit-ppg Vis-sec Solids % 51/9 DRIG W/ Motor DRIA W/ MotoR ナロムン HOURLY BREAKDOWN TRIP OUT USTA OP LAY DOWN SAT S.T. 210027 DP. SCREW WD. WIRELING + RIG UP WITH LINE + FREE POIN Formation Tops ANTRIN @ 3021 OUT OF HILF LAVIOUN 2 JTS DP WAShITRAU FM @ tool Joint Thau Lm **@** \_ DEVIATION Ē V. Sec M.D. Orift Direction T.V.D **M**or S **€**or W STATION 5206 3001 9 3002 6.2 19 77 ELEVATIONS = 18 CORD LAST

DAILY DRILLING REPORT

DAY: 500 DATE: 9-18-94

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OPE	RATOR: <u>KA-li</u>	um CH	emical					
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	Report Day No	Drill R	ate min/ft	,	Size		Depth	, 2
MUD	Gradient-psi/ft	<u></u>		<u> </u>	/0c	<u>ා ය</u>	LCM-lb/bbl	/, 3 Solids %
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DAY: <u>547</u> ROKOS CONSULTING INC. DATE: 9-17-94 DAILY DRILLING REPORT OPERATOR: KALIUM CheMICAL RIG: MCD #4 WELL NAME: KHIJUM HERSEY 1031 2760 5/0' STATUS: \_ Depth Footage Cut LAST CSG: \_\_\_\_/3% (T.O.C. = 548/F) DAYS: \_ Report Day No. Drill Rate min/ft MUD: \_\_\_. 467 1400 9,0 Gradient-psi/ft Wt-ppg W.L.-cc Cl-mg/i LCM-lb/bbl Solids % Vis-sec 3 1/2 Dale 112 3 23<u>26</u> HOURLY BREAKDOWN 11/4 143/4 Data Formation Tops @ \_ DEVIATION SURVEYS Nos M.D. Orit Direction T.V.D V. Sec E or W STATION ELEVATIONS
B T B P CORD LAST

DAY: FRI ROKOS CONSULTING INC. DATE: 9-16-9-DAILY DRILLING REPORT OPERATOR: KALIWAS ChEMICS! WELL NAME: KAliani. RIG: MCD 1031 2250 STATUS: \_\_\_\_\_DRILLING 604 Depth Footage Cut To 2 (T.O.C. = 5025) DAYS: \_ LAST CSG: \_ Report Day No. Depth Drill Rate min/ft 20 MUD: <u>・ムルフ</u> Gradient-psuft NC LCM-lb/bbl Wt-ppg Уы-зес W.L.-cc Ci-mg/i Solids % 8901 WATON FishiNo tools TO DOE FICH Tou/5 trook WORK DIVE LHU Dawn Fich TIH LAY DOWN 6+ts HOURLY BREAKDOWN DRLC Formation Tops 1829 Cola binter @ DEVIATION SUNVEYS

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DAILY DRILLING REPORT

DAY: Thru.

DATE: 9-15-94

OPER	RATOR: <u>Ka/</u>	14M Ch Fime	/ بوم:				
WELL	NAME: KA	lium HERS	EV 1531	<u>,                                    </u>	RIG:	ACD. #4	<u></u>
_	164.5		826	STATUS:	CIRC	AUER FIS	h TWSTED
DAYS MUD:	Report Day	7.5	20	AST CSG: 13	3 <u>49</u> @	920 (T. Depth	0.C. = S&RF
_	Gradient-psi/ft	Wt-ppg	Vis-sec	W.Lcc	Cl-mg/i	LCM-lb/bbi	Salids %
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BREAKDOWN	12.	DALO					120 100411
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ELEVATIONS	2	NORD LAST					
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DAY: WEO DATE: 9-14 DAILY DRILLING REPORT OPERATOR: KALUIM ChENICAL WELL NAME: KALUIM HERSEN 1031 RIG: 12. Pio STATUS: \_ Footage Cut DAYS: LAST CSG: . Report Day No. Drill Rate min/ft Depth MUD: \_\_\_\_\_\_ 41,22 LCM-lo/bbi Wt-ppg W.L.-cc Cî-mg/i Solids % Vis-sec REWIN HOLE 5/10 TO LCW ナメー アバニハ マー Rasi 820 JHEAKDOWN : Find En-1 2018 35 25 to 1500 M.D. Orift T.V.D V. Sec Nes E or W Direction STATION

JURD LAST

DAILY DRILLING REPORT

DAY: TUKS

DATE: 9- 13-94 OPERATOR: HALIUM ChEMICAL RIG: MC.D WELL NAME: KALLOW HERSEV STATUS: Ream Back 510 Depth Footage Cut (T.O.C. = 5EX.) \_\_ LAST CSG: \_\_ DAYS: \_\_ Report Day No. Drill Rate min/ft 446 Gradient-psi/ft LCM-lb/bbl Wt-ppg W.L.-cc CI-mg/l Salids % Vis-sec RISUP + Run 185/9 8A3 CHT CHNOULTOR HOURLY BREAKDOWN Flow NIPPLE + 2" FILLER W TID DRIA OUT LEASENT TAG @ 270 46070 FID Formation Tops DEVIATION SURVEYS Œ .. M.D. Orist T.V.D V. Sec Direction STATION ELEVATIONS AF = ORD LAST AT -KB ∍

# ROKOS CONSULTING INC. DAILY DRILLING REPORT

DAY: MON DATE: 9-12-94

OPERATOR: /	KALLIAN CH	(EMIRAL					
WELL NAME: A	KALULIN H		1031	RIG:	M.C	D #	
684				US:	Ria	UP TO RI	18 18 18 18 18 18 18 18 18 18 18 18 18 1
Depth		Footage Cut			,		
DAYS:	1 Day No. Dr	ilt Rate min/ft	LAST CSG: _	<u>30</u>	_" @		D.C. = PRIVEN
MUD:	L Day No. Dr	iii Hate minit		2126		Depth	
Gradient-p	si/ft W1-ppg	Vis-sec	W.Lcc	Ci-	mg/i	LCM-ib/bbl	Salids %
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544	Wall	T ON C	oil tub	136			
DAY: 54	ed 1	of call to	biva CLA	1 × 10.	UT PR	111 5+8.	, <u>.</u>
DATE: 9-1	1-94 1/	FISH I	AR DN E	• '	METO		
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ROKOS CONSULTING INC.
DAILY DRILLING REPORT

DAY: <u>541</u>

WELL I	NAME: K	Alulm	HERSEU	#103/	F TUS:	RIG:	NCD #	4. F15h
DAYS: .	Report Day	8.9	Footage Cut	LAST CSG:	Size	?o @	Oepth	(T.O.C. = 1)/e
	Gradient-psi/ft	Wt-ppg	Vis-sec	W.Lc	c	Cl-mg/l	LCM-lb/bbi	Solids %
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_	3 -	+14	with Bit	wash'T	otop	OF FISH	772	TOOH.
	33/4	Pick ut	WAShOVER	PIPE WE	1d TO	EFTHER	T.J.H.	
_	11/2	WASh	NUEL FISH					
- X	13/4.	T.00 H	LAY DOW	W WASh	PIPE			
<u> </u>	F1/2	+14	W/TARS	18			W	
EAK	61/4	TAR	DN FISH					
BRI	1/2	+0	OH.					
HOURLY BREAKDOWN	2/4	17n 4 8	E UP FISH	( -'			Form	ation Tops
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DAILY DRILLING REPORT

DAY: <u>SAT</u>
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WELL	NAME: Kal	upp HE	2554 710	3/	RIG:^	ACD. A	- ja	
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ROKOS CONSULTING INC. DAILY DRILLING REPORT OPERATOR: KALIUM CHEMICAL WELL NAME: KALLINA HERSEY 41231 RIG: \_ STATUS: \_ Footage Cut (T.O.C. = URINEH DAYS: LAST CSG: Report Day No. Drill Rate min/ft 4 MUD: Gradient-psi/ft LCM-lb/bb! Solids 😘 Wi-ppg Vis-sec 4 ツバ MUD & BACKOFF FREE POINT DIRE LIVE LOV DOWN DC HOLE + MODE NEE HOURLY BREAKDOWN ARCHI 40 Mud RAT HOLE Formation Tops \_ @ \_ FREE A. 318' DEVIATION Œ

T.V.D

Direction

V. Sec

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STATION

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ELEVATIONS

Drift

DAILY DRILLING REPORT

DAY: <u>T/184</u> DATE: <u>9-8-94</u>

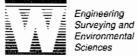
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DAY: Wed ROKOS CONSULTING INC. DATE: 9 -7-94 DAILY DRILLING REPORT OPERATOR: KAlium CHEMICAL MDC #4 WELL NAME: KAlum 1031 RIG: 384 2841 STATUS: Dala SAND & BRAVE ! Depth Footage Cut 30 (T.O.C. = D) DAYS: \_ \_\_\_ LAST CSG: \_ Report Day No. Drill Rate min/ft MUD: \_\_.482 9.3 55 SOUD MUD Gradient-psi/ft LCM-lb/bbl Wt-ppg W.L.-cc Cl-mg/l Solids % Vis-sec MOC#4 12 MI d Ru 30" conductor Pits - weld onto Fill mix mua RAT Hole & Mouse Hole 171/2" Dailling Ho/e HOURLY BREAKDOWN Formation Tops @\_ DEVIATION SURVEYS *l*7 'ይ" Hole @ 12:30 mg - 7 - 94 5000 M.D. Ortit Direction T.V.D V. Sec NerS EarW STATION ELEVATIONS

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300RD

#### Wilcox Associates Inc.



P.O. Box 580 7711 South US 131 CADILLAC, MI 49601 616 775-7755

**OST** 17 1994

### LETTER OF TRANSMITTAL

	Sciences	616 775	·77 <b>55</b>		10/7/94 JOB NO. 94183
				Ī	Supervisor of Wells
TO 0	Geological Sur	vev Div	vicion		Well Elevations - Kalium Chemical
N	lichigan Dept	, of Nat	tural Resources		Well #1031
<u>P</u>	roration Unit	<u>.</u> 56 ·		[	Permit #M394
	ansing, Ml				Section 26, T17N, R9W
					Hersey Township, Osceola County,
					Michigan
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STATE OF MICHIGAN OEPARTMENT OF NATURAL RESOURCES GEOLOGICAL SURVEY DIVISION BOX 30028

LANSING MICHIGAN 48909

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This permit includes as requirements all the operations and methods proposed by the applicant, unless rejected or altered by the DNR, and along with the attached stipulations are incorporated in its entirety by reference.

WELL NAME KALTIM HERSEY #1031 PERMIT TYPE OF WELL 6/29/94 SOLUTION HINE M 394 CANCEL AND TRANSFER ISSUED A-1 EVAPORATE DEPTH DEEPENING PERMIT 8311' MD - 7800' TVD PERMIT EXPIRES KIND OF TOOLS 12/29/94 ROTARY ISSUED TO

REVISED PERMIT

KALIUM CHENICALS LID. 1395 SOUTH 135th AVENUE HERSEY, HI 49639

LOCATION AND FOOTAGES:

SHL: SW2, NW2, NW2, Section 26, T17N, R9W, Hersey Township, Oscaola County. 1314' from the North line and 660' from the West line of quarter section.

Swig, Swig, Swig, Section 26, T17N, RSW, Hersey Township, Oscools County. 390' from the South line and 1179' from the East line of quarter section

			ASING AND SEALING REQUI	REMENTS		ALC:
O.D. SIZE	<u>WT./FT.</u>	CASING GRADE	CONDITION	DEPTH	SACKS	W.O.C. (HRS.)
13 3/8"	54.5%	J <b>-</b> 55	New	6 800	625	16
9 5/8*	***	Mary and the same		Photographic by B	INX	16
7*	238	I-60	New Y	8311	300	16

- § Surface casing shall be set at least 100° into competent bedrock or below all fresh water wase, whichever is deeper, and circulat to surface.
- No earthen reserve pit is to be duq. Steel tanks are to be used to contain drilling fluids and cuttings.
- Solids and cuttings may be temporarly stored in asphalt lined improvident area. All cuttings shall be removed within 30 days after reaching total depth and hauled to a disposal facility approved of by the Cadillac District Graingest, Hal Fitch area code (616) 775-9727.
- "77" production casing shall be comented such that an adequate sheath is provided through and above the A2 Carborate, The annulus between the 7° and 9 5/8° casing strings shall be continuously monitored and recorded.
- 5. Contact Thomas Godbold at the Lansing Office ((517) 334-6945) 24 hours prior to commencing drilling operations.
- 6. This well shall be drilled and operated in compliance with the Hydrogen Sulfide Rules (R 299.1911 to R 299.1999). NOTIFY LOCAL EMERGENCY PREPAREDNESS COORDINATOR OF WELL LOCATION, H2S POTENTIAL, and CONTINGENCY PLAN AVAILABILITY orior to moving in rig.

OFFICE TO BE NOTIFIED BEFORE DRILLING/DEEPENING STARTS

CADILLAC DISTRICT OFFICE (616) 775-9727

william R. Leb

PERMIT COORDINATOR

(517) 334-6974 FOR THE SUPERVISOR OF WELLS/MINERAL WELLS

PAGE 1 of PAGE(S)

#### THIS PERMIT IS SUBJECT TO THESE GENERAL CONDITIONS

- 1. Drilling operations shall not start until the drill site preparation requirements are completed.
- 2 Initiation of any work on the permitted project confirms the permittee's acceptance and agreement to comply with all the terms and conditions of this permit and the rules, orders and requirements of the Supervisor of Wells/Mineral Wells.
- 3 The permittee is required to give notice to public utilities in accordance with Act 53, PA 1974 (M.C.L. 460,701 to 460,718).
- 4 Any changes from what is stated in the permit application and permit shall be approved by the Supervisor of Wells/Mineral Wells
- 5 This permit is valid only for the permittee of issue and any change of ownership shall be accompanied by a request to the Supervisor of Wells Mineral Wells to transfer the permit from the current owner to the new owner.
- 6 NOTICE AND REQUIREMENTS FOR SOURCES OF WATER AND WATER WELLS USED IN CONJUNCTION WITH OIL AND GAS OR MINERAL WELL DRILLING AND OPERATIONS" December 1, 1984 is made part of and a condition of this permit.
- 7 During well completion and testing procedures all fluids shall be contained in tanks and transported to off site disposal facilities
- 8 The Michigan Air Pollution Control Commission rules require that a person shall not install nor after sour gas or oil well production equipment and flare unless a permit to install has been approved by the Commission. An operator is allowed to drill and test a sour well prior to obtaining the necessary permit to install from the Commission, but is not allowed full production or such wells before issuance of the necessary air use permits.
- 3 This permit flows not convey properly rights in either real estate or material or does it authorize any injury to private property or invasion of private or public rights or does it waive the necessity of seeking federal and local permits or complying with other state statutes.
- 10 If a Hydrogen Sulphide contingency plan is required a copy of PART II of the plan shall be posted in the primary briefing area.
- 11 All trash and garbage shall be removed from the drill site at the completion of drilling.
- 12 Blewout preventers, accumulators, and pumps shall be certified as operable under the product manufacturer's minimum operational specifications. This certification shall include proper operation of the closing unit valving, pressure gauges and manufacturer's recommended accumulatory fluids. Certification may be obtained through those companies presently used to test the blowout preventers stack and casing Certification shall be required annually and shall be posted on the rig floor.
- 13. In addition to the primary closing system, including an accumulator system, the blowout preventers shall have a secondary system. A combination of any two of the following secondary closing systems will be acceptable: Electric-operated pump; Air-operated pump; Hand-operated pump or nitrogen. Extensions with hand wheels are not mandatory.
- 14 Blowout preventer rams shall be of proper size for the drill pipe being used or production casing being run in the well. Variable type rams of the proper size range will be acceptable
- 15 The gas buster and flare system shall be in place and operable prior to drilling into a reservoir known or believed to contain Hydrogen Sulphide in excess of 500 ppm with the intention to complete in and/or test that reservoir.
- 16. A trip tank, or any accurate fluid monitoring system, as well as a gas buster and flare system where justified, shall be in place when penetrating the A2 Carbonate formation. Changes may be granted by the Department of Natural Resources District Geologist.

Hersey, MI 49639  Is lease or well name; (be as birel as possible)  Kalium Chemicals, Ltd.  15 Address:  1395 135th Ave., Hersey, MI 49639  From Bit Wale of Williams Chemicals, Ltd.  15 Address:  1395 135th Ave., Hersey, MI 49639  From Bit Wale of Williams Chemicals of Williams Chemica	APPLICATION	ON FOR PI	ERMIT T	O: 🔯 DF	NILL 🗌 D	EEPEN	I 🗌 RE	WORK	<b>OR</b> _ 0	PERATE	A V	<b>VELL</b>
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Permit         Date Issued         Number         Lawrence E. Bean         616-832-3755           Act 61         31 Signature:         Date:           ZAct 315         6-29-94         M-394         Townerse         Dean         8-8-94		icals, Ltd		Lawrence	Bean,	1395	135th	Ave.	, Hersey	y, MI	496	539
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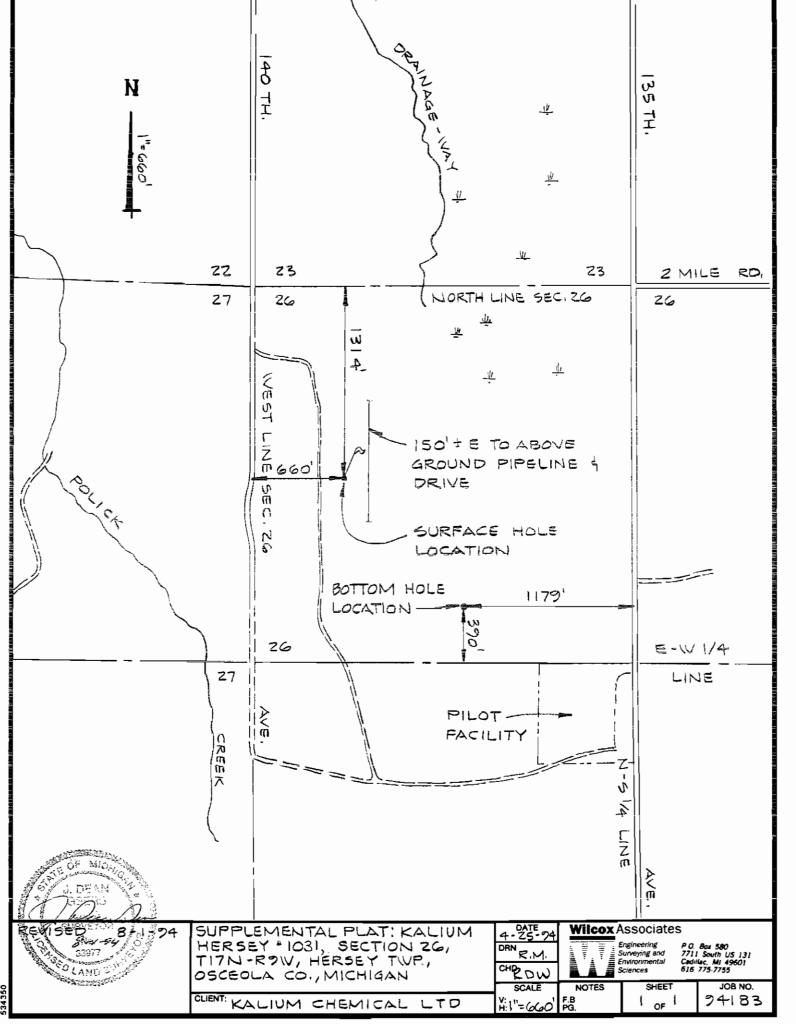
#### STATE OF MICHIGAN

#### SURVEY RECORD OF WELL LOCATION

🔀 Act 61. P.A. 1939, as amended. 🔲 Act 315 P.A. 1969 as amended Filing of Survey Record, Plat or Plot Plan and Environmental Impact Assessment with Application for Permit to Drill are REQUIRED by the above listed Acts, in order to obtain a Permit.

94183

94183				,
APPLICANT	WELL NAME AND N			
Kalium Chemicals, Ltd.		Hersey #1031		
	TOWNSHIP		COUNTY	:
SW 1 of MW1 of NW1 of Section 26 717N R 9W	Hersev		Osceola	
BOTTOM HOLE LOCATION			COUNTY	
CHI CE NIH OC 17N OH	1.1		o ,	
SW % of SE % of NW % of Section 26 T 17N R 9W	Hersey		Osceola	
Instructions: Outline drilling unit and spot well location on Plat shows				
into an East half and a West half OR a North half and a South half cirections from NEAREST quarter section and unit lines (For Act 61,			Onit and locate the	weii in two
2 Location of well in two directions from NEAREST quarter section and unit lines is (For Act 61 P.A. 1939, as amended):	1 PLAT BELOV	V REPRESENTS OF		📤
Surface Location:		(1 MILE SQU		N 📳
	<b>4</b>		Surface	
1314 ft. from North line of Quarter Section	<u></u>	/ 2	Hole	
SSO Work	114	23	Location	
	P/	61	l i	, 1
Dance Hale Laurieux	660'	1 1995'		]
Bottom Hole Location:		<del></del>	<del></del>	
390 ft from South line of Quarter Section	-		Bottom	!
1.5	υ 1-		Hole	
1179 ft. from East line of Quarter Section	1483	1179'_	Location	
,		1	1	
Bottom Hole Will Be:	17	1		
N/A ft fromline of unit/property (Act 315) lease		390		!
(nonh-south)		ا و		:
ft_fromline_of_unit/property (Act 315) lease		SECTION	26	
(6921-me2t)		1		
3a Describe wellsite marker Show or describe access route if it is not				: ! !
readily accessible		<del></del>	<del></del>	:
Wellsite is marked with a painted wood stake Surface location can be reached from the		İ		
Southeast, off of 135th Avenue, along an			1	
existing access trail to the site.		!	į į	İ
existing access trull to the site.		ì		İ
3b Zoning Residential X Other: None in effect		1		
3c Effective date:	· (Sca	le of Plat — 1 in	ch equals 1320 ft.)	I
4 ON SEPARATE PLAT OR PLOT PLAN, LOCATE, IDENTIFY AND S				
A All roads power lines residences farm buildings and other s	tructures within 3	300 feet of the st	take.	
B All lakes streams swamps drainage-ways or any other surfac	e water features	within 1320 feet	of the stake	
E I ENVIRONMENTAL BARACT ACCECCAGNIT I III III				
5 In an ENVIRONMENTAL IMPACT ASSESSMENT describe all structule and position control (See instructions and guidelines for preparation	res and surrace i n of an environm	eatures snown de ental impact asses	calling plans for naza (sment).	as prevention
Company Company		oman impedit dodde		
NAME OF NOIVIOUAL WHO SURVEYED SITE	DATE	TITLE		
J. Dean Geers PS#339	<del>977</del> 8-1-94	Professional	Surveyor _	
To a surgery and the surgery a				-
		S US-131, (		9601
I CENTEY THE ABOVE INFORMATION IS COMPLETE AND ACCURAT		OF MY KNOWLE		
SIGN Applicant or authorized representance AODRESS (If different than Lassee)			DATE (Month Day )	rear)
Same and the same			8-8-9	4
Jammy, Bean				<del>/</del>
				200-2 6/88





#### **Kalium Chemicals** P.O. Box 290, 11461 South 135th Avenue Hersey, Michigan 49639 Telephone: (616) 832-3755 Fax: (616) 832-3349

Mr. William R. Lee Permit Coordinator Permits and Bonding Unit Geological Survey Division Department of Natural Resources P. O. Box 30256 Lansing, MI 48909

## RE: <u>Casing and Cementing Procedures for</u> <u>Kalium Hersey 1031 and 1032</u>

- 1. Conductor pipe of 30 inch diameter will be driven to refusal in this well. Surface hole will be drilled with a 17-1/2" bit 100 feet into the competent rocks of the Michigan Group at a depth of approximately 800 feet. New 13-3/8 inch, 54.50 #/foot, J55 casing will be run to bottom with a Texas pattern shoe. The bottom three joints of casing will be strapped across the collars in three sections. The casing will be cemented with returns to surface. Wait on cement time will be 16 hours.
- 2. The 12-1/4 inch intermediate hole will be drilled directionally to the Amherstberg Formation (Black lime) at a depth of approximately 5250 feet (5100 feet T.V.D.) as local drilling shows no lost circulation zones deeper. Intermediate casing, new 9-5/8 inch, 40 #/foot, K-55 seamless casing, will be set at this depth and two stage cemented to surface as per cementers recommendations in line with accepted cementing practices.
- 3. The 8-1/2 inch production hole will be drilled into the A-1 Evaporite at a depth of approximately 8000 feet (7800 feet T.V.D.). The primary objective of this well is the evaluation and production of the potash mineralization of the A-1 Evaporite. The evaluation program will consist of coring the mineralized section of the A-1 Evaporite and appropriate geophysical logs. Production casing will be new 7 inch, 23 #/foot, L-80 seamless casing set in the A-1 Evaporite and cemented back to 5500 feet with premium cement.

leb200 1

4. After the well operations have ceased, it will be plugged and abandoned according to Department of Natural Resources requirements.

Respectfully submitted,

Lawrence E. Bean Minefield Supervisor

cc: Robert E. Thompson

Jack Rokos

William E. Booker, Acting Cadillac District Geologist

## STATE OF MICHIGAN MINERAL WELL OPERATORS ENVIRONMENTAL IMPACT ASSESSMENT

#### Well Identification

Name and Address of Applicant: Kalium Chemicals, Ltd.

11461 S. 135th Avenue

P. O. Box 333

Hersey, MI 49639-9762

Well Name and Number: Kalium Hersey #1031

Surface Location: NW 1/4 of SW 1/4 of NW 1/4
Bottom Location: SW 1/4 of SE 1/4 of NW 1/4

Section 26, T 17 N, R 9 W

Hersey Twp., Osceola Co., MI

#### I. Description of Project

A development well is to be directionally drilled from a surface location 1314 feet from the North line and 660 feet from the West line of the Northwest 1/4 of Section 26, T17N, R9W, to a bottom hole location 390 feet from the South line and 1179 feet from the East line of the same Northwest 1/4 of Section 26, T17N, R9W. The well will be directionally drilled from a new surface location with 30 inch conductor pipe. The well will be drilled to a total anticipated vertical depth of 8000 feet for the evaluation and production of sodium and potassium mineralization through the Niagaran Formation, with total depth in the A-1 Evaporite Formation. The well is located in the Northwest 1/4 of Section 26, T17N, R9W, Hersey Township, Osceola County, Michigan. Surface and mineral rights for the entire Northwest 1/4 of Section 26 are in private ownership and all concerned parties have been informed of the proposed well location and advised of our intentions to complete an application for a permit to drill this mineral well.

The proposed well is part of a project involving several other wells. All wells will be drilled from a common drilling pad area. The area will be on an extension to the South of the existing pad. The new pad area will extend 150 feet South of the existing pad and will require a moderate amount of earthwork for leveling and pad preparation. The land surrounding the wellsite is rolling, open, dormant field. Land use in the surrounding area is mixed agricultural and forest recreational. Natural topography at the site had been a ridge and drainage is both West and East. The drainage to the Northwest is toward Polick Creek, while that to the Northeast is toward Bull Hill Creek. Both creeks are over 1/4 mile away and are part of the Muskegon River watershed. There are no lakes or principal streams within 1/4 mile of the wellsite, however, there is a small seasonally wet area approximately 1200 feet Northeast of the location.

#### ENVIRONMENTAL IMPACT ASSESSMENT - MINERAL KALIUM - KALIUM HERSEY #1031 PAGE 2

Access to the location will be from the Southeast, along an existing Kalium Chemicals, Ltd. road. This road originates at 135th Avenue, an all-season bituminous surfaced County road running along the North-South 1/4 line of Section 26. Emergency access is also available from the West off of 140th Avenue, a gravel surfaced County road located along the West line of Section 26.

#### II. Environmental Impact Assessment

The drilling of the well at this location should have only a minor effect on the ecological system of the vicinity. Wildlife is abundant throughout the region, but no special or endangered species are known to exist in the vicinity of the proposed project. The proposed project should have only a slight effect on future population patterns.

The proposed project is for further development and production for solution mining operation purposes. A 7 inch casing will be set to the A-1 Evaporite and cemented back to 5500 feet, below the intermediate casing in this solution mining well.

A minimal disruption to the environment will result by concentrating this well in the same areas as those which have already been drilled. A total area of approximately 7-1/4 acres has previously been prepared and up to an additional 1/2 acre will be prepared for drilling this well and two future wells. Tree removal is not necessary to clear the drilling pad. Appropriate drill site drainage and sedimentation control measures have been incorporated in the operational plan. The new pad will be hard surfaced, as necessary, to provide containment of all drilling fluids. We have not experienced any unusual erosional problems at this location.

Due to environmental considerations, Kalium Chemicals, Ltd. does not plan to use conventional reserve pits. The well will be drilled using a pit liner rig base sealed around the cellar, rathole, and mousehole for containment of fluids. The following special measures will be taken in the handling of drilling solids and fluids. The drilling fluids will be circulated through closed-looped working pits. The solids control in the drilling fluid will be handled through a special flocculent and centrifuge system to provide effective separation of the brine from the drill cuttings. Brine will be disposed of in an approved disposal well. The semi-dry drill cuttings will be temporarily stored on an impervious barrier at the drilling location. The barrier will be sloped such that any leachate will collect at a central location to allow easy recovery and subsequent disposal in a disposal well. The volume of the containment area, including its side-dikes will be such, as to hold several days of precipitation, in addition to holding the drilling cuttings expected from the wells. Final disposition of the cuttings will be at an approved landfill site.

#### ENVIRONMENTAL IMPACT ASSESSMENT - MINERAL KALIUM - KALIUM HERSEY #1031 PAGE 3

Access to the wellsite will be from the Southeast off 135th Avenue and will utilize the existing service road. Emergency access is also available from the West off 140th Avenue. No new access trail will need to be constructed.

Although other wells at this location have not encountered significant concentrations of hydrogen sulfide gas, intentions are to proceed as if the possibility does exist at this location. Appropriate safety measures will be taken. In general, the Administrative Rules for the Management of Hydrogen Sulfide, effective September 2, 1987, prepared by the Geological Survey Division of the Department of Natural Resources, will be observed. The site is well isolated from human habitation. There is only one residence within 1/4 mile of the wellsite, lying approximately 1/4 mile Southwest of the location.

An existing water supply well had been drilled for use in drilling the previous wells. This same water well will be used in drilling the proposed mineral well. Immediately following the drilling and completion operations of all wells which are part of this project, the well will be properly abandoned.

Upon completion of drilling and producing operations the well will be plugged in accordance with Michigan Department of Natural Resources instructions prior to abandonment. The drilling pad area will be fine graded, stabilized, and restored, as nearly as possible, to its original condition. This project is expected to have only a slight effect on the immediate environment.

#### III. Possible Alternatives to the Proposed Well Location

The proposed location has been selected on the basis of a geologic interpretation and an extensive on-site evaluation. By drilling this well from a common drilling pad with others, a minimal disruption of the environment will result. Preparation of the drilling pad will not require additional tree removal. No new access trail will be required. The proposed project area is well isolated from surface waters and human habitation. We believe the site is generally well suited for the undertaking of this project and that adequate protection of the environment can be maintained at this location. For these reasons, we believe that drilling the well from the surface location proposed is the best available alternative.

#### IV. Any Irreversible and Irretrievable Commitment of Resources

The proposed project should not require a significant commitment of natural resources. The productivity of the land utilized for the drilling pad and access road will be lost during the life of the project, but the surface resources of the drill site will not be irreversibly committed. Drilling of the well will not curtail the use of the surrounding environment.

#### ENVIRONMENTAL IMPACT ASSESSMENT - MINERAL KALIUM - KALIUM HERSEY #1031 PAGE 4

#### V. Summary

In order to minimize surface disturbances, this development well is to be drilled from a common surface location which has been used for other wells in this 1/4 section. The total surface area necessary for this project encompasses approximately 7 3/4 acres. The drilling pad is located on rolling, generally open land. The drill site and the surrounding 7 3/4 acres are a part of the commercial potash solution mining facility operated by Kalium Chemicals, Ltd. Land use in the surrounding area is mixed agricultural and forest recreational. Natural drainage from the location is both Northeasterly and Northwesterly toward tributaries of the Muskegon River There are no lakes or principal streams within 1/4 mile of the proposed wellsite, however, there is a small, seasonally wet area located approximately 1265 feet Northeast of the wellsite. Appropriate drill site drainage and sedimentation control measures have been included in the operational plan. Although it is not anticipated that sour gas will be encountered at this location, the intention is to proceed as if the possibility exists. Access to the wellsite will be from the Southeast off of 135th Avenue and will utilize the existing service road. Emergency access is also available from the West off of 140th Avenue. We consider the environmental impact of this project to be minimal, and will make every effort to insure protection and preservation of the environment during the course of our drilling and producing operations.

Applicant's Representative

Comments by Department of Natural Resources Representative:

Authorized Representative

# SOUR GAS CONTINGENCY PLAN - PART II KALIUM HERSEY #1031 SECTION 26, T17N, R9W, HERSEY TOWNSHIP, OSCEOLA COUNTY, MICHIGAN

#### RESIDENTS WITHIN 1/4 MILE OF WELLSITE

1. Douglas Dailey 11431 S. 140th Avenue Hersey, MI 49639 Phone: 616-832-4698

P//PROJECTS/94183/4/2594183

#### **EMERGENCY TELEPHONE NUMBERS**

Name	Location		Number		
Company Personnel Larry Bean	Hersey, MI	(Office)	616-832-3755		
Don Purvis	Hersey, MI	(Office)	616-832-3755		
MDNR Hal Fitch	Cadillac, MI		616-775-9727		
Raymond Vugrinovich	Lansing	(Office) (Home)	517-334-6951 517-339-9547		
Sheriff	Osceola Cour	nty	911 or 616-832-2288		
State Police	Reed City, M	I	911 or 616-832-2221		
Ambulance	Alpha 1 N. Patterson Reed City, M		911 or		
Hospital	Reed City Ho N. Patterson Reed City, M	Road	616-832-3271		
Fire Department	Hersey, MI		911 or 616-832-3255		
Director of Emergency Services Dallas Jenks	Osceola Co.	(Office) (Emergency)	616-832-6172 911		
Pollution Emergency Alerting System (PE	AS)		800-292-4706		

SOUR GAS CONTINGENCY PLAN - PART II KALIUM - KALIUM HERSEY #1031 PAGE 2

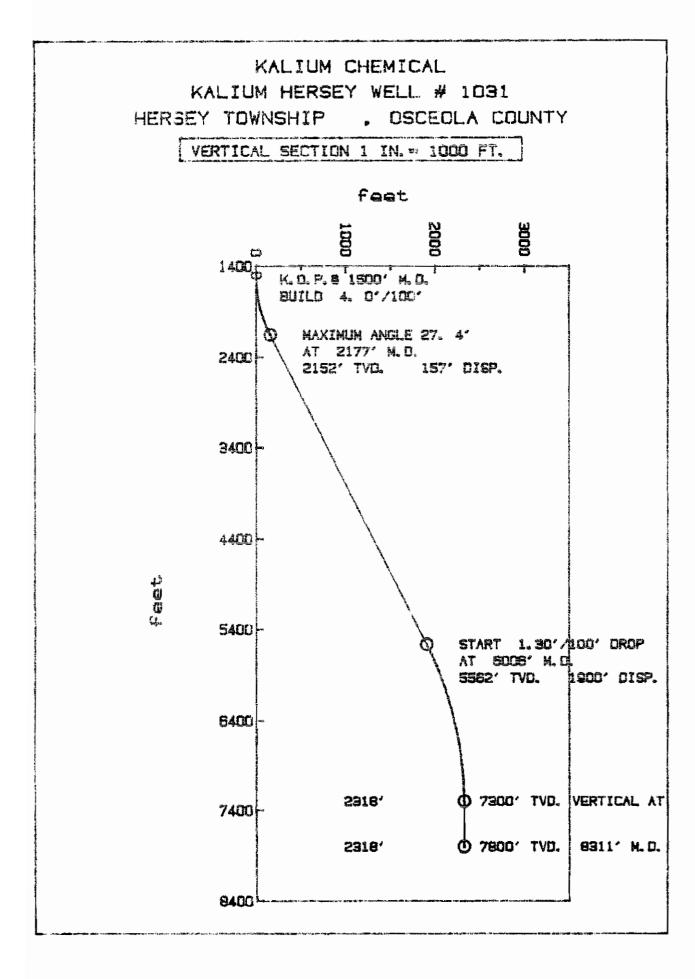
#### NEAREST PUBLIC TELEPHONE

The nearest public telephone is located in front of the General Store in the town of Hersey. It is located North 1/2 mile on 140th Avenue, then West 4 miles on Hersey Road to the general store in the town of Hersey, on 180th Avenue.

#### MUD TREATMENT

A gas buster will be provided.

NOTE: For location of residences, public gathering places and evacuation routes, see vicinity map.



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KALIUM CHEMICAL

KALIUM HERSEY WELL # 1031

OBJECTIVE NO. 1:

2318' S66.11'E OF SURFACE LOCATION

FERSEY TOWNSHIP . OSCEDLA COUNTY 7811' M. D.

7811' M.D. 7300' TVD.

936' SOUTH 2121' EAST

1 IN. - SOO FT.

OBJECTIVE NO. 2:

2318' S66. 11'E OF

SURFACE LOCATION

8911' M.D. 7800' TVD. 986' SOUTH 2121' EAST

SUBMITTED BY

Directional Orilling Contractors, Inc.

100'X 100' TARGET feet

800 500 5. į -600 Foot -1200 -1900 -2400

#### WELLHEAD BLOWOUT CONTROL SYSTEM

Optional worksheet supplement for Application For Permit to Drill Deepen Rework or Operate a Well By Authority of Act 61 P.A. 1939 as amended or Act 315 P.A. 1969 as amended

#### STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES GEOLOGICAL SURVEY DIVISION

Box 30028

	Cansing. Michigan 40909
COMPANY	WELL NAME AND NUMBER
Kalium Chemicals, Ltd.	Kalium Hersey 1031
COLI ANN 1/h of CM 1/h of ANN 1/h of Co	action 26 T17N ROW Howsey Two Ossocia Co.
BHL - SW 1/4 of SE 1/4 of NW 1/4 of Se	ection 26, T17N, R9W, Hersey Twp, Osceola Co. ction 26, T17N, R9W, Hersey Twp., Osceola Co.
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(Ptps/Slind)	B.O.R.—— Rams 13 3/6" x 5000 W. P. (Pipe/Billed)
	(Pipe/Billid)
heck Valve 2 "x 5000 W.R	TIME VOINE SUBDINING
C/alve 2 " 5000 W.P.	/
_	
Flow	2 "Line
	MANIFOLD
KILL LINE MANIFOLD	1111 SUB MANIFOLD 5000 #
Spool 1334 x 5000 W.P.	
Ground Level	
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	WELLHEAD 3000 # W P.
Il blanks with applicable information, if not applicab	le, enter "N.A or cross-out item shown. Enter other pertin
formation below.	ie, enter M.A. of 61055-out item shown Litter other pertin
This BOP system to be used on surface	casing while drilling to intermediate casing point
· -	<del></del>
	·

6681

STATE OF MICHIGAN
DEPARTMENT OF NATURAL RESOURCES
GEOLOGICAL SURVEY DIVISION
BOX 30028
LANSING MICHIGAN 48909

PERMIT TO

☑ DRILL □ DEEPEN □	REWORK   OPERATE
	R PROVISIONS OF
Act 61 PA. 1939, as amended	Act 315, P.A. 1969 as amende
(M C L 319.1 to 319.27)	(M.C.L. 319 211 to 319 236)
Violation of and/or non-con	mpliance with the provisions
	permit may result in penalties.
	nts all the operations and methods
proposed by the applicant, unless r	rejected or altered by the DNR, and

along with the attached stipulations are incorporated in its entirety by

PERMIT M 394	1SSUED 6/29/94	TYPE OF WELL SOLUTION MINE
CANCEL AND TRANSFER	ISSUED	FORMATION A-1 EVAPORATE
DEEPENING PERMIT		8000*
PERMIT EXPIRES		KIND OF TOOLS
	12/29/94	ROTARY
ISSUED TO		

KALTUM CHEMICALS LITO. 1395 SOUTH 135th AVENUE HERSEY, MI 49639

WELL NAME

KALIUM HERSEY \$1014

LOCATION AND FOOTAGES:

SHL: NHZ, SHZ, NHZ, SEC. 26, T17N, R9W, HERSEY TOWNSRIP, OSEROLA COUNTY.
1304 feet from SOUTH line and 650 feet from NEST line of quarter section.

BEL: NWW, NWW, SEC. 26, TITH, R9W, HERSKY TURNSHIP, OSCIOLA CHANTY. 367 feet from NCRIH line and 286 feet from WEST line of quarter section.

		CASING CA	SING AND SEALING REQU	REMENTS	CEMEN	T
O.D. SIZE	WT./FT.	GRADE	CONDITION	DEPTH	SACKS	W.O.C. (HRS.)
13 3/85	54.5%	J-55	PHZ.V	6 800,	625	16
9 5/9"	<b>4)</b> §	Z-5G	NEW	E250*	1869	16
7*	235		115	*CXB	300	16

- 1. § Surface casing shall be set at least 100° into competent bedrock or below all fresh water zones, whichever is deeper, and circulate to surface.
- No earthen reserve pit is to be day. Steel tanks are to be used to contain drilling fluids and cuttings.
- Solids and cuttings may be temporarly stored in asphalt lined impoundment area. All
  cuttings shall be removed within 30 days after reaching total depth and hauled to a
  disposal facility approved of by the Cadillac District Geologist, Hal Fitch
  (616-775-9727).
- 4. "77" production casing shall be camented such that an adequate sheath is provided through and above the A2 Carbonate. The annulus between the 7" and 9 5/8" casing strings shall be continuously abnitored and recorded.
- 5. Contact Thomas Godbold at the Lansing Office (517-334-6945) Milwurs prior to commencing drilling operations.
- 6. This well shall be drilled and operated in compliance with the Hydrogen Sulfide Rules (R 299.1911 to R 299.1999). NOTIFY LOCAL EMERGENCY PREPAREDNESS COORDINATOR OF WELL LOCATION, H2S POTENTIAL, and CONTINGENCY PLAN AVAILABILITY prior to moving in rig.

OFFICE TO BE NOTIFIED BEFORE DRILLING/DEEPENING STARTS

CADILLAC DISTRICT OFFICE (616) 775-9729

BY

PAGE(S)

WILLIAM R. LEE

PERMIT COORDINATOR

(517) 334-6974
FOR THE SUPERVISOR OF WELLS/MINERAL WELLS

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PR 7200 Rev. 7/85

PAGE 1 of

#### THIS PERMIT IS SUBJECT TO THESE GENERAL CONDITIONS

- 1 Drilling operations shall not start until the drill site preparation requirements are completed
- 2 Initiation of any work on the permitted project confirms the permittee's acceptance and agreement to comply with all the terms and conditions of this permit and the rules, orders and requirements of the Supervisor of Wells/Mineral Wells.
- 3 The permittee is required to give notice to public utilities in accordance with Act 53, PA 1974 (M.C.L. 460 701 to 460 718).
- Any changes from what is stated in the permit application and permit shall be approved by the Supervisor of Wells/Mineral Wells.
- 5. This permit is valid only for the permittee of issue and any change of ownership shall be accompanied by a request to the Supervisor of Wells/Mineral Wells to transfer the permit from the current owner to the new owner.
- 8 NOTICE AND REQUIREMENTS FOR SOURCES OF WATER AND WATER WELLS USED IN CONJUNCTION WITH OIL AND GAS OR MINERAL WELL DRILLING. AND OPERATIONS" December 1, 1984 is made part of and a condition of this permit
- 7 During well completion and testing procedures all fluids shall be contained in tanks and transported to off site disposal facilities.
- 8 The Michigan Air Pollution Control Commission rules require that a person shall not install nor after sour gas or oil well production equipment and flare unless a permit to install has been approved by the Commission. An operator is allowed to drill and test a sour well prior to obtaining the necessary permit to install from the Commission, but is not allowed full production of such wells before assuance of the necessary air use permits.
- 3 This permit does not convey properly rights in either real estate or material or does it authorize any injury to private properly or invasion of private or public rights or does it waive the necessity of seeking federal and local permits or complying with other state statutes.
- 10 It a Hydrogen Sulphide contingency plan is required a copy of PART li of the plan shall be posted in the primary briefing area.
- If All trash and garbage shall be removed from the drill site at the completion of drilling.
- 12. Blowout preventers, accumulators, and pumps shall be certified as operable under the product manufacturer's minimum operational specifications. This certification shall include proper operation of the closing unit valving pressure gauges, and manufacturer's recommended accumulatory fluids. Certification may be obtained through those companies presently used to test the blowout preventers stack and casing. Certification shall be required annually and shall be posted on the rig floor.
- 13 In addition to the primary closing system, including an accumulator system, the blowout preventers shall have a secondary system. A combination of any two of the following secondary closing systems will be acceptable: Electric-operated pump; Air-operated pump; Hand-operated pump or nitrogen. Extensions with hand wheels are not mandatory.
- 14 Blowout preventer rams shall be of proper size for the drill pipe being used or production casing being run in the well. Variable type rams of the proper size range will be acceptable.
- 15. The gas buster and flare system shall be in place and operable prior to drilling into a reservoir known or believed to contain Hydrog∈n Sulphide in excess of 500 ppm with the intention to complete in and/or test that reservoir
- 16. A trip tank, or any accurate fluid monitoring system, as well as a gas buster and flare system where justified, shall be in place when penetrating the A2 Carbonate formation. Changes may be granted by the Department of Natural Resources District Geologist.

APPLICAT	ION FOR PE	ERMIT_T	O: 🕱 DRILI	_	l □ RE	WORK O	R _ OP	ERATE	A W	VELL
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5 List each permit nu	se Application ( Dance			or Soc Security No		No Yes				
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13 Lease or well nam Kalium He	ne: (be as brief as poss rsey	sible)	₩	ell number:	L014					
14 Surface owner: Kalium Ch	emicals, Ltd	•								
15 Address: 1395 S.	135th Avenue	, Hersey	7, MI 496	none: 39 616-	-832-37	55		S		
16 Surface location (S	,		Į.	ownship		Cou	unty	_		
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b Location: 3	67 ft from (N/S)	North	Line of quarter se	ction AND 2	<b>7</b> 6	.ft from (E/W	West	Line o	f quarte	r section
c. Unit: N/A			Line of drilling			ft. from (E/W				
19 Drilling contractor:	Drilling Co			combination) 21 Is		gas expected? [ Yes	? 22 Blowo		diagram Yes	enclosed?
23 Blowout control (D	gil quipment type siz	te <b>a</b> m rating	testing choke man			103		·	100	
	ed Drawing									
24 Intended Total Dep	₩ ₩		26 Producing Form			27 Objective				
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(TVD)	<u> </u>		23 E00		ND54435-					
	110-84-646 \$50,00									
29 Send corresponden	ce and permit to:	Address								
	icals, Ltd.,		Lawrence	Bean, Box	290, H	Hersey,	MI 4	9639		
	FOR DNR USE	ONLY		30 Application Pre	epared By: (P			Pho		
Permit	Date Issued		Number	Lawrence	Bean	<u></u> A	<u>616</u>	-832-		<u> </u>
Act 61 YACT 315	<u>6-29-94</u>		394	31 Signature:	5	De	_	Date 4	_94	
PR 7200-1 Rev 1/89	· · · · · · · · · · · · · · · · · · ·		-	FOR CASI	HIER'S USE	ONLY. DO NO	T WRITE II	N THIS S	PACE	

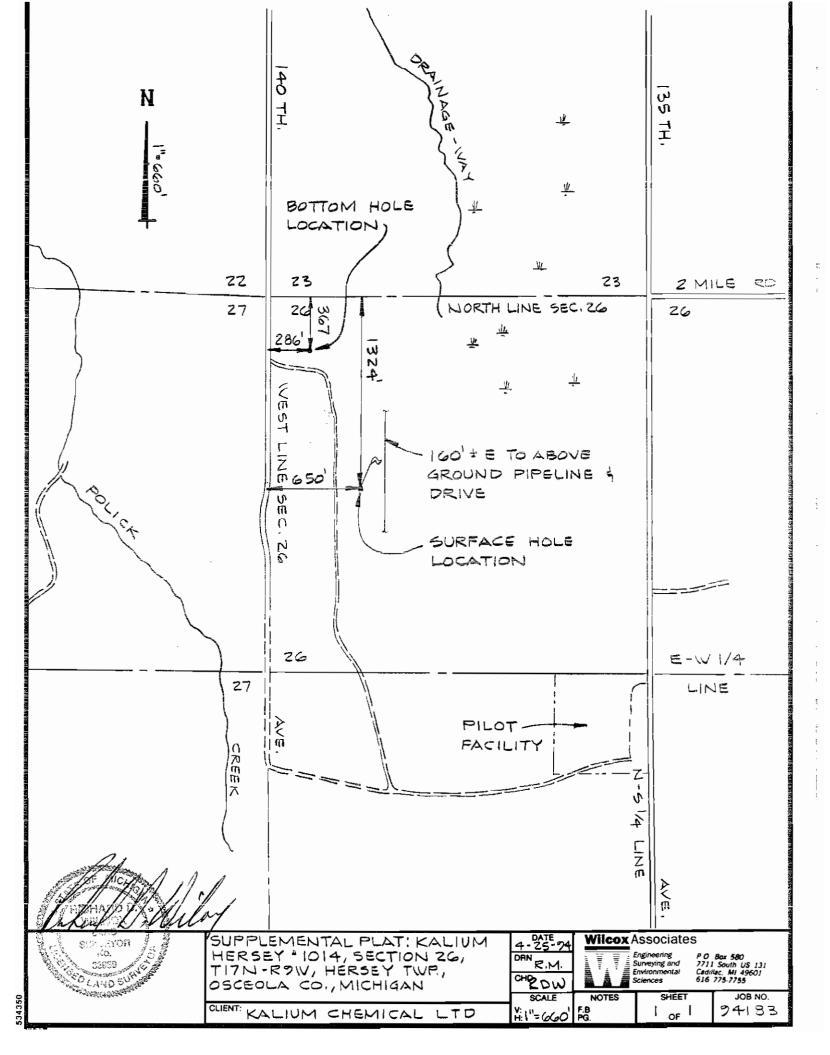
#### STATE OF MICHIGAN

### SURVEY RECORD OF WELL LOCATION

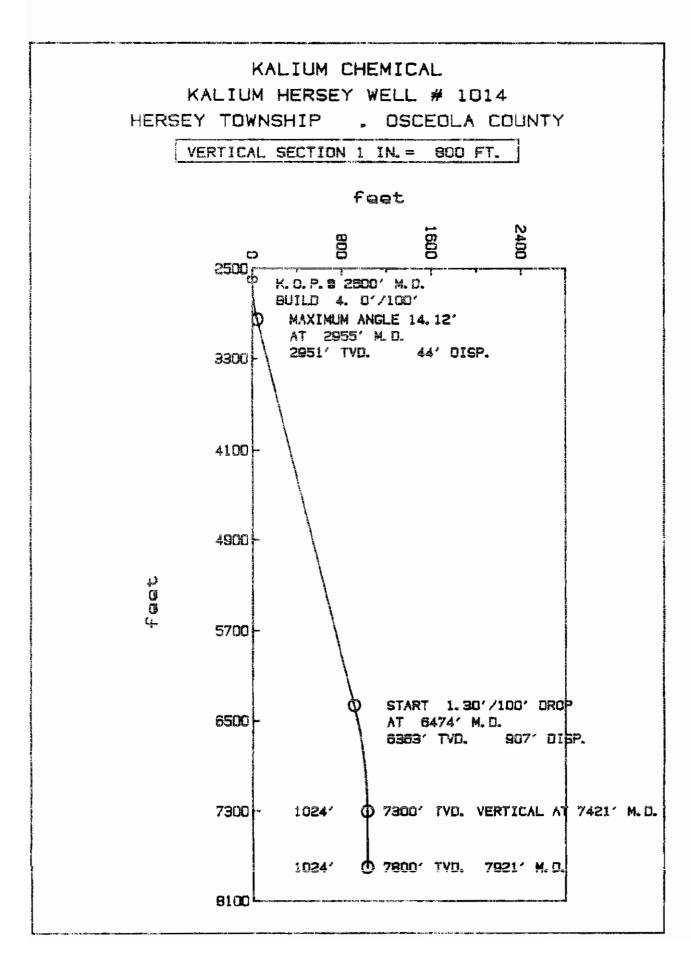
Act 61, P.A., 1939, as amended. X Act 315 P.A. 1969, as amended.

Filing of Survey Record, Plat or Plot Plan and Environmental Impact Assessment with Application for Permit to Drill are REQUIRED by the above listed Acts, in order to obtain a Permit.

94183			
Kalium Chemicals, Ltd.	WELL NAME AND NUMBER  Kalium Hersey #1014		
SURFACE LOCATION	TOWNSHIP COUNTY		
NW % of SW % of NW % of Section 26 T 17N 89W	Hersey Osceola		
NW % of NW % of NW % of Section 26 T 17N R 9W	Hersey Osceola		
NW % of NW % of NW % of Section 26 T 17N R 9W Hersey Osceola  Instructions: Outline drilling unit and spot well location on Plat shown below (1.). Where drilling unit crosses section lines, divide the Plat into an East half and a West half OR a North half and a South half (whichever applies). Outline the Unit and locate the well in two directions from NEAREST quarter section and unit lines (For Act 61, P.A. 1939, as amended).			
2 Location of well in two directions from NEAREST quarter section and unit lines is (For Act 61, P.A. 1939, as amended):	(1 MILE SQUARE) N		
Surface Location:	23621		
1304 ft. from South line of Quarter Section	Bottom Bottom		
650 ft. from West line of Quarter Section	Hole Location		
Bottom Hole Location:			
367 ft. from North line of Quarter Section	650 2005'		
286 ft. from West line of Quarter Section	Surface Hole Location		
Bottom Hole Will Be:			
N/A ft. from line of unit/property (Act 315) lease	SECTION 26		
ft. fromline of unit/property (Act 315) lease			
3a. Describe wellsite marker. Show or describe access route if it is not readily accessible  Wellsite is marked with a painted wood stake.  Surface location can be reached from the  SE, off of 135th Avenue, along an existing access trail to the site.			
3b. Zoning  Residential  X Other: None in effect			
3c Effective date:	(Scale of Plat - 1 inch equals 1320 ft.)		
4 ON SEPARATE PLAT OR PLOT PLAN LOCATE, IDENTIFY AND SHOW DISTANCES TO:			
A All roads, power lines residences farm buildings and other s  8 All lakes streams, swamps, drainage-ways or any other surface			
5 In an ENVIRONMENTAL IMPACT ASSESSMENT describe all structure and erosion control See instructions and guidelines for preparation	res and surface features shown detailing plans for hazards prevention		
NAME OF NOW BURE SINE SINE TITLE			
ADDRESS Richard D. Wilcox PS#33989 4-28-94 Professional Surveyor			
WILCOX ASSOCIATES, INC. 7711 S. US-131 PO Box 580 Cadillac, MI 49601			
I CERTIFY THE ABOVE NEGRMATION IS COMPLETE AND ACCURATE TO THE BEST OF MY KNOWLEDGE AND BELIEF.  SIGNATURE (Applicant or authorized representative)  ADDRESS (If different than Lessee)  DATE (Month Day Year)			
James E Dear	6-8-94		
- Correction - Cor			



### KALIUM CHEMICAL OBJECTIVE NO. 1: 1024' N20, 49'W OF KALIUM HERSEY WELL # 1014 SURFACE LOCATION HERSEY TOWNSHIP . DSCEOLA COUNTY 7421' M. D. 7300' TVD. 957' NORTH 364' WEST PLAN VIEW IN. = 300 FT. OBJECTIVE NO. 2: 1024' N20, 49'W OF SURFACE LOCATION 7921′ M.D. 78001 TVD. 957' NORTH 364' WEST SIMITTED BY: Directional Brilling Contractore, Inc. 50'X 50' TARGET feet 1200 9 900 600 TO CO 300 0 5. --300



## STATE OF MICHIGAN MINERAL WELL OPERATORS ENVIRONMENTAL IMPACT ASSESSMENT

#### Well Identification

Name and Address of Applicant: Kalium Chemicals, Ltd.

11461 S. 135th Avenue

P. O. Box 333

Hersey, MI 49639-9762

Well Name and Number: Kalium Hersey #1014

Surface Location: NW 1/4 of SW 1/4 of NW 1/4
Bottom Location: NW 1/4 of NW 1/4 of NW 1/4

NW 1/4 of NW 1/4 of NW 1/4 Section 26, T 17 N, R 9 W

Hersey Twp., Osceola Co., MI

#### I. Description of Project

A development well is to be directionally drilled from a surface location 1324 feet from the North line and 650 feet from the West line of the Northwest 1/4 of Section 26, T17N, R9W, to a bottom hole location 367 feet from the North line and 286 feet from the West line of the Northwest 1/4 of Section 26, T17N, R9W. The well will be directionally drilled from a new surface location with 30 inch conductor pipe. The well will be drilled to a total anticipated vertical depth of 8000 feet for the evaluation and production of sodium and potassium mineralization through the Niagaran Formation, with total depth in the A-1 Evaporite Formation. The well is located in the Northwest 1/4 of Section 26, T17N, R9W, Hersey Township, Osceola County, Michigan. Surface and mineral rights for the entire Northwest 1/4 of Section 26 are in private ownership and all concerned parties have been informed of the proposed well location and advised of our intentions to complete an application for a permit to drill this mineral well.

The proposed well is part of a project involving several other wells. All wells will be drilled from a common drilling pad area. The area will be on an extension to the South of the existing pad. The new pad area will extent 150 feet South of the existing pad and will require a moderate amount of earthwork for leveling and pad preparation. The land surrounding the wellsite is rolling, open, dormant field. Land use in the surrounding area is mixed agricultural and forest recreational. Natural topography at the site had been a ridge and drainage is both West and East. The drainage to the Northwest is toward Polick Creek while that to the Northeast is toward Bull Hill Creek. Both creeks are over 1/4 mile away and are part of the Muskegon River watershed. There are no lakes or principal streams within 1/4 mile of the wellsite, however, there is a small seasonally wet area approximately 1200 feet Northeast of the location.

P-\PROJECTS\94183\MTN94183

#### ENVIRONMENTAL IMPACT ASSESSMENT - MINERAL KALIUM - KALIUM HERSEY #1014 PAGE 2

Access to the location will be from the Southeast, along an existing Kalium Chemicals, Ltd. road. This road originates at 135th Avenue, an all-season bituminous surfaced County road running along the North-South 1/4 line of Section 26. Emergency access is also available from the West off of 140th Avenue, a gravel surfaced County road located along the West line of Section 26.

#### II. Environmental Impact Assessment

The drilling of the well at this location should have only a minor effect on the ecological system of the vicinity. Wildlife is abundant throughout the region, but no special or endangered species are known to exist in the vicinity of the proposed project. The proposed project should have only a slight effect on future population patterns.

The proposed project is for further development and production for solution mining operation purposes. A 7 inch casing will be set to the A-1 Evaporite and cemented back to 5500 feet, below the intermediate casing in this solution mining well.

A minimal disruption to the environment will result by concentrating this well in the same areas as those which have already been drilled. A total area of approximately 7-1/4 acres has previously been prepared and up to an additional 1/2 acre will be prepared for drilling this well and two future wells. Tree removal is not necessary to clear the drilling pad. Appropriate drill site drainage and sedimentation control measures have been incorporated in the operational plan. The new pad will be hard surfaced, as necessary, to provide containment of all drilling fluids. We have not experienced any unusual erosional problems at this location.

Due to environmental considerations, Kalium Chemicals, Ltd. does not plan to use conventional reserve pits. The well will be drilled using a pit liner rig base sealed around the cellar, rathole, and mousehole for containment of fluids. The following special measures will be taken in the handling of drilling solids and fluids. The drilling fluids will be circulated through closed-looped working pits. The solids control in the drilling fluid will be handled through a special flocculent and centrifuge system to provide effective separation of the brine from the drill cuttings. Brine will be disposed of in an approved disposal well. The semi-dry drill cuttings will be temporarily stored on an impervious barrier at the drilling location. The barrier will be sloped such that any leachate will collect at a central location to allow easy recovery and subsequent disposal in a disposal well. The volume of the containment area, including its side-dikes will be such, as to hold several days of precipitation, in addition to holding the drilling cuttings expected from the wells. Final disposition of the cuttings will be at an approved landfill site.

#### ENVIRONMENTAL IMPACT ASSESSMENT - MINERAL KALIUM - KALIUM HERSEY #1014 PAGE 3

Access to the wellsite will be from the Southeast off 135th Avenue and will utilize the existing service road. Emergency access is also available from the West off 140th Avenue. No new access trail will need to be constructed.

Although other wells at this location have not encountered significant concentrations of hydrogen sulfide gas, intentions are to proceed as if the possibility does exist at this location. Appropriate safety measures will be taken. In general, the Administrative Rules for the Management of Hydrogen Sulfide, effective September 2, 1987, prepared by the Geological Survey Division of the Department of Natural Resources, will be observed. The site is well isolated from human habitation. There is only one residence within 1/4 mile of the wellsite, lying approximately 1/4 mile Southwest of the location.

An existing water supply well had been drilled for use in drilling the previous wells. This same water well will be used in drilling the proposed mineral well. Immediately following the drilling and completion operations of all wells which are part of this project, the well will be properly abandoned.

Upon completion of drilling and producing operations the well will be plugged in accordance with Michigan Department of Natural Resources instructions prior to abandonment. The drilling pad area will be fine graded, stabilized, and restored, as nearly as possible, to its original condition. This project is expected to have only a slight effect on the immediate environment.

#### III. Possible Alternatives to the Proposed Well Location

The proposed location has been selected on the basis of a geologic interpretation and an extensive on-site evaluation. By drilling this well from a common drilling pad with others, a minimal disruption of the environment will result. Preparation of the drilling pad will not require additional tree removal. No new access trail will be required. The proposed project area is well isolated from surface waters and human habitation. We believe the site is generally well suited for the undertaking of this project and that adequate protection of the environment can be maintained at this location. For these reasons, we believe that drilling the well from the surface location proposed is the best available alternative.

#### IV. Any Irreversible and Irretrievable Commitment of Resources

The proposed project should not require a significant commitment of natural resources. The productivity of the land utilized for the drilling pad and access road will be lost during the life of the project, but the surface resources of the drill site will not be irreversibly committed. Drilling of the well will not curtail the use of the surrounding environment.

ENVIRONMENTAL IMPACT ASSESSMENT - MINERAL KALIUM - KALIUM HERSEY #1014 PAGE 4

#### V. Summary

In order to minimize surface disturbances, this development well is to be drilled from a common surface location which has been used for other wells in this 1/4 section. The total surface area necessary for this project encompasses approximately 7 3/4 acres. The drilling pad is located on rolling, generally open land. The drill site and the surrounding 7 3/4 acres are a part of the commercial potash solution mining facility operated by Kalium Chemicals, Ltd. Land use in the surrounding area is mixed agricultural and forest recreational. Natural drainage from the location is both Northeasterly and Northwesterly toward tributaries of the Muskegon River. There are no lakes or principal streams within 1/4 mile of the proposed wellsite, however, there is a small, seasonally wet area located approximately 1265 feet Northeast of the wellsite. Appropriate drill site drainage and sedimentation control measures have been included in the operational plan. Although it is not anticipated that sour gas will be encountered at this location, the intention is to proceed as if the possibility exists. Access to the wellsite will be from the Southeast off of 135th Avenue and will utilize the existing service road. Emergency access is also available from the West off of 140th Avenue. We consider the environmental impact of this project to be minimal, and will make every effort to insure protection and preservation of the environment during the course of our drilling and producing operations.

Applicant's Representative

Comments by Department of Natural Resources Representative:

Authorized Representative

#### WELLHEAD BLOWOUT CONTROL SYSTEM

Optional worksheet supplement for Application For Permit to Drill Deepen Rework or Operate a Well " By Authority of Act 61 P.A. 1939, as amended or Act 315 P.A. 1969 as amended

## STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES GEOLOGICAL SURVEY DIVISION

Box 30028 Lansing Michigan 48909

COMPANY	WELL NAME AND NUMBER
Kalium Chemicals, Ltd.	Kalium Hersey 1014
LOCATION SHI - NW 1/4 of SW 1/4 of NW 1/4 of SW	Section 26 T17N R9W Hersey Two. Osceola Co
BHL - NW 1/4 of NW 1/4 of NW 1/4 of S	Section 26, T17N, R9W, Hersey Twp, Osceola Co., Section 26, T17N, R9W, Hersey Twp., Osceola Co.,
Annular B.O.P. 13 3/4 "x 5000 W.P.	8.0.P.
	<u> </u>
months:	плутына 🖾 Hydraulic
	SVI Court Anima
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10.P Rams 13 3/8" x 5000 W p. 2	
₹ <u></u>	
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Valve 2" 5000 w.P.	
Valve 2 " 5000 w 2 7	
Flow The Control of t	
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	MANIFOLD L
KILL LINE MANIFOLD Spool 1334 x 5000 W.R	
Ground Laval - XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	AN AN AN AN AN AN AN AN AN AN AN AN AN A
مناوحه فدم الم معنف معنف ماطورنا معارضا النا	sould protect this A. 2 or proper out item shows. Enter other parting
iii blanks with applicable information, if not applic iformation below.	cable, enter 'N A" or cross-out item shown. Enter other pertine
	e casing while drilling to intermediate casing point.
	<del>_</del>



#### Kalium Chemicals P.O. Box 290, 11461 South 135th Avenue Hersey, Michigan 49639 Telephone: (616) 832-3755 Fax: (616) 832-3349

Mr. William R. Lee Permit Coordinator Permits and Bonding Unit Geological Survey Division Department of Natural Resources P. O. Box 30256 Lansing, MI 48909

#### RE: Casing and Cementing Procedures for Kalium Hersey 1014

- 1. Conductor pipe of 30 inch diameter will be driven to refusal in this well. Surface hole will be drilled with a 17-1/2" bit 100 feet into the competent rocks of the Michigan Group at a depth of approximately 800 feet. New 13-3/8 inch, 54.50 #/foot, J55 casing will be run to bottom with a Texas pattern shoe. The bottom three joints of casing will be strapped across the collars in three sections. The casing will be cemented with returns to surface. Wait on cement time will be 16 hours.
- 2. The 12-1/4inch intermediate hole will be drilled directionally to the Amherstberg Formation (Black lime) at a depth of approximately 5250 feet (5100 feet T.V.D.) as local drilling shows no lost circulation zones deeper. Intermediate casing, new 9-5/8 inch, 40 #/foot, K-55 seamless casing, will be set at this depth and two stage cemented to surface as per cementers recommendations in line with accepted cementing practices.
- 3. The 8-1/2 inch production hole will be drilled into the A-1 Evaporite at a depth of approximately 8000 feet (7800 feet T.V.D.). The primary objective of this well is the evaluation and production of the potash mineralization of the A-1 Evaporite. The evaluation program will consist of coring the mineralized section of the A-1 Evaporite and appropriate geophysical logs. Production casing will be new 7 inch, 23 #/foot, L-80 seamless casing set in the A-1 Evaporite and cemented back to 5500 feet with premium cement.

leb186 1

4. After the well operations have ceased, it will be plugged and abandoned according to Department of Natural Resources requirements.

Respectfully submitted,

Larry Bean

Minefield Supervisor

cc: Robert E. Thompson

Jack Rokos

William E. Booker, Acting Cadillac District Geologist

# SOUR GAS CONTINGENCY PLAN - PART II KALIUM HERSEY #1014 SECTION 26, T17N, R9W, HERSEY TOWNSHIP, OSCEOLA COUNTY, MICHIGAN

#### **RESIDENTS WITHIN 1/4 MILE OF WELLSITE**

Douglas Dailey 11431 S. 140th Avenue Hersey, MI 49639 Phone: 616-832-4698

#### **EMERGENCY TELEPHONE NUMBERS**

Name	Location		Number
Company Personnel Larry Bean	Hersey, MI	(Office)	616-832-3755
Don Purvis	Hersey, MI	(Office)	616-832-3755
MDNR Hal Fitch	Cadillac, MI		616-775-9727
Raymond Vugrinovich	Lansing	(Office) (Home)	517-334-6951 517-339-9547
Sheriff	Osceola Cour	nty	911 or 616-832-2288
State Police	Reed City, M	Ī	911 or 616-832-2221
Ambulance	Alpha 1 N. Patterson Reed City, M		911 or
Hospital	Reed City Ho N. Patterson Reed City, M	Road	616-832-3271
Fire Department	Hersey, MI		911 or 616-832-3255
Director of Emergency Services Dallas Jenks	Osceola Co.	(Office) (Emergency)	616-832-6172 911
Pollution Emergency Alerting System (PEAS)			800-292-4706

SOUR GAS CONTINGENCY PLAN - PART II KALIUM - KALIUM HERSEY #1014 PAGE 2

#### **NEAREST PUBLIC TELEPHONE**

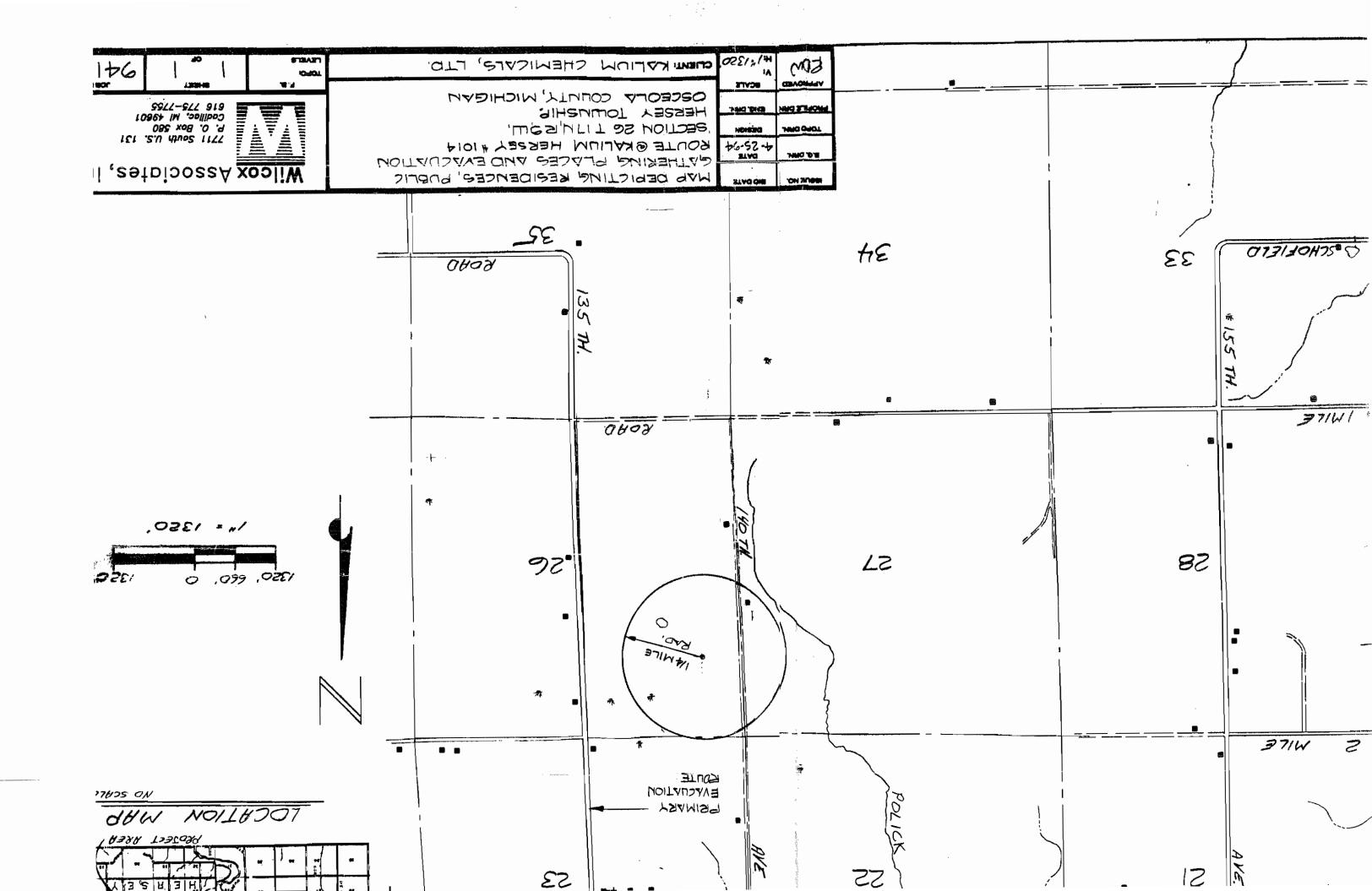
The nearest public telephone is located in front of the General Store in the town of Hersey. It is located North 1/2 mile on 140th Avenue, then West 4 miles on Hersey Road to the general store in the town of Hersey, on 180th Avenue.

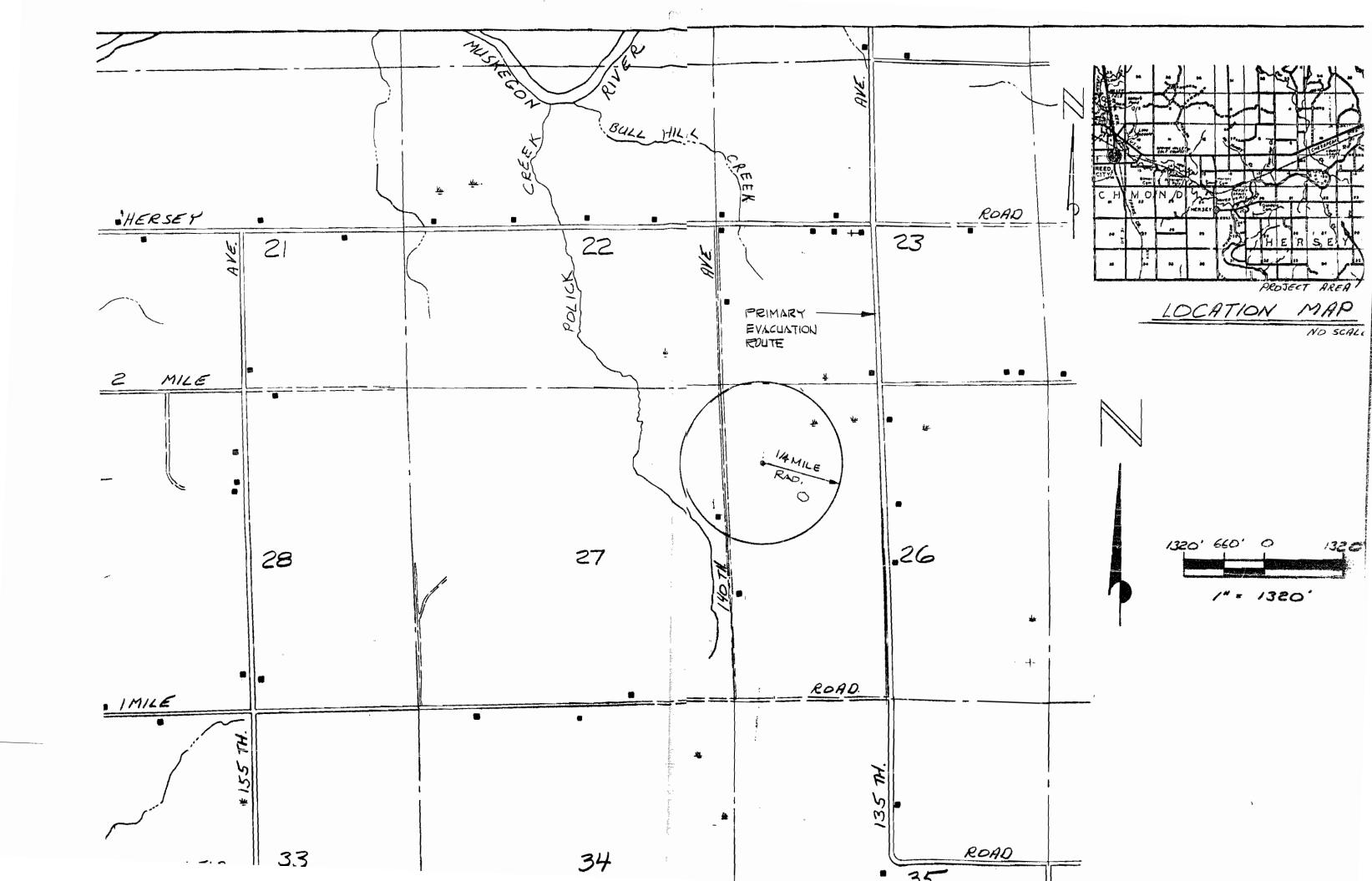
#### **MUD TREATMENT**

A gas buster will be provided.

NOTE: For location of residences, public gathering places and evacuation routes, see vicinity map.

APPLICANT	Kalum Chemicals Ital NUMBER 1/11/10005
well name	luin Hersey #1014 DATE REC'D 6-10-94
VENDOR #	NEW VENDOR [ ] ORGANIZATIONAL CHART REC'D [ ]
FEE [ ]	Ck cashier (Ch#/Bank/City) United State Postal Movey (hole Ck#/604364445 90  Deepening Revision C & T Tag enclosed
	Single Well [ ] Surety [ ] C.D. [ ] L.C. [ ] Cash Blanket Bond Number
DRILLING [ ]	S.O. 1-73 [ ] S.O. 1-86 [ ] Statement of control of unit 10-12-87 [ ] Sub 330  General Rules Conflicts Field Spacing Order Voluntary Pooling [ ] Admin. Approval [ ] Pooling Doc's
LOCATION	Survey [ ] Certification of Elevation to be Run Directional Plans Posted on Map Zoning NONE [ ] S.I. 2-87
CASING [ ]	Rotary [ ] Cable [ ] Combination Int. Csg. S.O. 2-73 [ ] 30% Exception [ ] Short Int Exc Through Gas Storage S.O. 1-87
SURFACE/ [ ] MINERAL [ ] OWNERSHIP [ ]	Private Surface, Notified by [   Statement [ ] Letter State Surface State Minerals Lease # Restrictions Real Estate Emp. Contacted Date Real Estate Approval by Date Federal [ ] Copy to MMS [ ] Copy to USFS [ ] USFS Approval
H <sub>2</sub> S	Copy to H <sub>2</sub> S Unit [ ] Sweet [ / Sour Contingency Plan Acceptable Possible H21
EIA [ ]	Special Order 1-81 [   Supervisor Letter 1-84
DISTRIB.	Confidential Request [ ] Copy to Northville, Plymouth, Canton Twp Copy to Subsurface and Petroleum Geology Unit Transmittal to District CAPILIAC Copy to Transmittal to Region
MISC. [ ]	Public Hearing Pending  Permits Hold [
REVIEWER: WRL.	DATE SENT TO FIELD: [ ] F.T. ENTRY





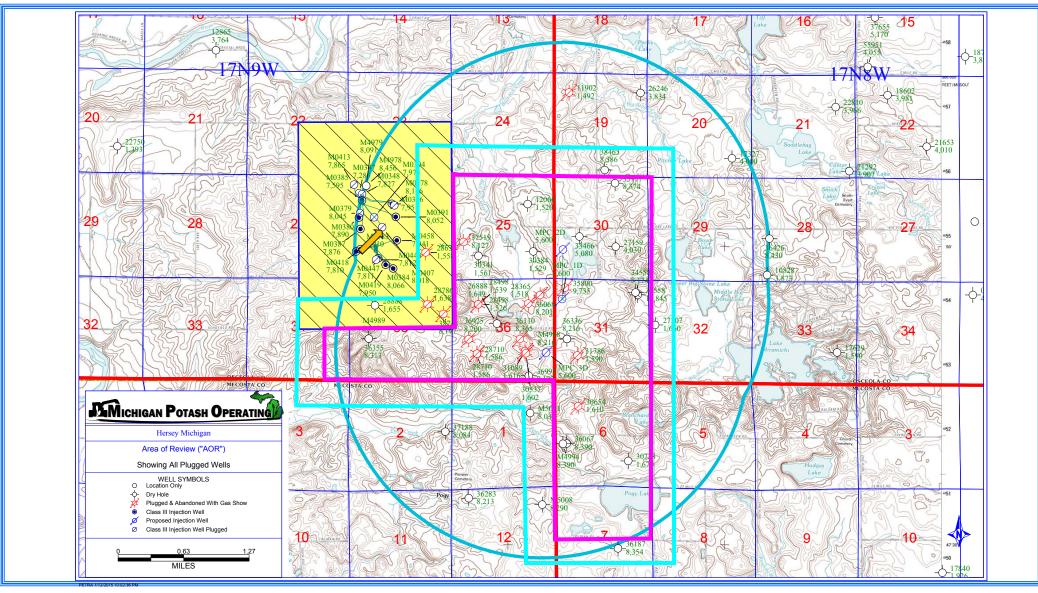
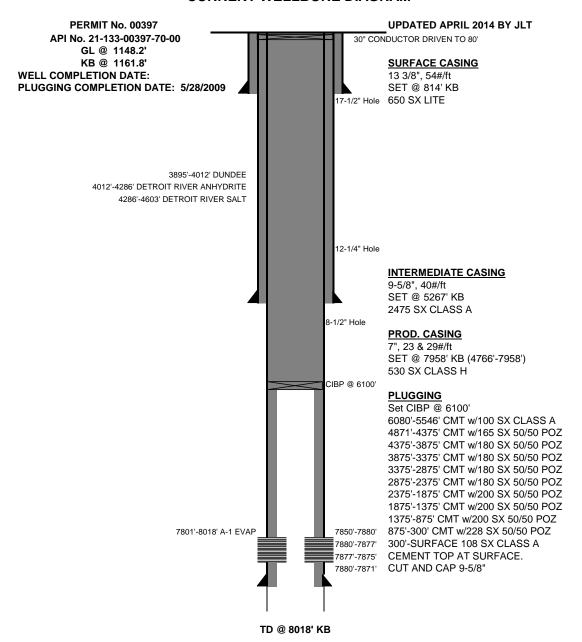


Figure B4. Map showing all plugged wells, shallow (that do not penetrate any confining horizon) or deep (that penetrate confining horzion) within the area of review. Total Depths are listed. There are several shallow Michigan Stray wells that do not penetrate the injection or confining horizon.

## **KALIUM 1032**

# NW SW NW Sec 26 T17N R9W OSCEOLA COUNTY, MI

## **CURRENT WELLBORE DIAGRAM**



## **KALIUM 1032 WELL HISTORY**

DATE DESCRIPTION 10/17/1994 SPUD. 11/15/1994 DRILLING COMPLETED. 13 3/8" SET AT 814'; 650 SX LITE 9 5/8" SET AT 5267'; 2475 SX CLASS A 7" SET AT 7958'; 530 SX CLASS H 5/20/2009 PLUGGING START DATE SET BIG BOY CIBP @ 6100' SET 100 SX CLASS A PLUG @6080' 5/21/2009 RUN FREE POINT TOOL AND LOCATE FREE PIPE @ 4770'. JUMP COLLAR AND RETRIEVE 4766' OF 7" CASING 5/22/2009 CONTACT MARK SMITH (MDEQ). HIS RECOMMENDATION WAS TO SET 2ND PLUG 100' INTO THE 7" CASING 5/27/2009 SET 165 SX PLUG @ 4871'. LAY DOWN PIPE AND SET 180 SX PLUG @ 4375'. LAY DOWN PIPE AND SET 180 SX PLUG@3875'. LAY DOWN PIPE AND SET 180 SX PLUG @ 3375'. LAY DOWN PIPE AND SET 180 SX PLUG @ 2875. LAY DOWN PIPE AND SET 200 SX PLUG @ 2375'. LAY DOWN PIPE AND SET 200 SX PLUG @ 1875'. LAY DOWN PIPE AND SET 200 SX PLUG @ 1375'. 5/28/2009 LAY DOWN PIPE AND SET 228 SX PLUG @875'. LAY DOWNPIPE AND SET 108 SX PLUG @ 300'. CEMENT TOP AT SURFACE. CUT AND CAP 9-5/8". PLUGGING COMPLETED.

5/28/2009

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MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY - OFFICE OF GEOLOGICAL SURVEY

# RECORD OF WELL PLUGGING OR CHANGE OF WELL STATUS

Required by authority of Part 615 Supervisor of Wells or Part 625 Mineral Wells of Act 451 PA 1994. as amended Non-submission and/or falsification of this information may result in fines and/or imprisonment

Plugging

☐ Change of Well Status

Permit number	Well name and	number						
397-855-767	Kalium 1032	Kalium 1032 (Mosaic)						
API number								
MI-133-3G-A002								
Name and address of	permittee				Ī			
Mosaic Potash He 1395 135 <sup>th</sup> Ave Hersev MI 49639								
Type of well		Field nam	e		_			
Solution Mining		Kalium	(Mosaic Po	otash)				
Surface location								
NW 1/4 SW 1/4	4 NW 1 /4	Sec 26	⊤ 17N	R 9W				

Name and address of contractor/service company

Mosaic Potash Hersey 1395 135<sup>th</sup> Ave Hersey, MI 49631

Part 615 Oil/Gas Well

Part 625 Mineral Well

Solution Mining Kalium (Mosaic Potash)

Surface location

NW 1/4 SW 1/4 NW1 /4 Sec 26 T 17N R 9W

Township County

Hersey Osceola

Date plugging/change started Date plugging/change completed

5/20/09 5/28/09

DEQ employee issuing plugging permit or approving Change of Well Status

Date issued 3/20/2009

Ray Vugrinovich

Any change of well status which results in a change of production or a change in injectivity must include production or injection test records. All records must include a narrative or daily chronology and signed certification noted on reverse

			(Hole	WELL PLUGGING conditions after pl				
	AND PROPERTY.			CASING				
C	asing size	Whe	ere set	set Amount casing pulled			rfed; or windo	ows milled
13 3/8" 814'				0				
9 5/8 " 5267'				0	,			
7" .		4766'-7958		4766'		4766'		
		ALOPEA P. CTPA TEST SERVICE						
					- La La Company			
				PLUGS				
		Adalas and hors		ment plugs: type	A 1.110	1 1 1		T =
Donth	ot plug	of bridge or plug	·		Additives,type and percent	Volume and types	Wait time	Tagged
Bottom	Top	or bridge or plug	ann	ount of cement & mix water	and percent	of spacers/flushes	wait time	Top?
BOLLOTT		DIO DOVICION		Timx water			111	1/19
00001	6100'	BIG BOY CIBP	400.0	- 01 1		53444455	144	1
6080'	5546'		100 Sack			FW/ 41.1 BBL	0	N
4871'	4375'		_	s 50/50 Poz		FW/ 32.4 BBL	0	N
4375'	3875'		_	s 50/50 Poz		FW/ 28.9 BBL	0	N
3875'	3375'		180 Sack	s 50/50 Poz		FW/ 25.0 BBL	0	N
3375'	2875'		180 Sack	s 50/50 Poz_		FW/ 21.3 BBL	0	N
2875'	2375'		180 Sack	s 50/50 Poz		FW/ 17.6 BBL	0	N
2375'	1875'		200 Sack	s 50/50 Poz		FW/ 13.9 BBL	0	N
1875'	1375'		200 Sack	s 50/50 Poz		FW/ 10.2 BBL	0	N
1375'	875'		200 Sack	s 50/50 Poz		FW/ 6.5 BBL	0	N
875'	300'		228 Sack	s 50/50 Poz		FW/ 2.2 BBL	0	N
Check i	f NORM or ot	her materials were left o	r reinserted into	wellbore. If so, describ	e materials fully in the	Daily Chronology sect	ion on revers	se.

Mail completed original and three copies to the appropriate DEQ district office within 60 days after completion of plugging/change of a Part 615 oil/gas well or within 30 days of a Part 625 mineral well.

OFFICE OF GEOLOGICAL SURVEY

RECEIVED

OFFICE OF GEOLOGICAL SURVEY MICHIGAN DEPT OF ENVIRONMENTAL QUALITY PO BOX 30256 LANSING, MI 48909-7756

Check if cores were taken and attach core descriptions

A total Alba Great a R warm buts.

AUG 1 8 2009

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY - OFFICE OF GEOLOGICAL SURVEY DE® Permit number Well name and number RECORD OF WELL PLUGGING 397-855-767 Kalium 1032 (Mosaic) OR CHANGE OF WELL STATUS API number MI-133-3G-A002 Required by authority of Part 615 Supervisor of Wells or Name and address of permittee Part 625 Mineral Wells of Act 451 PA 1994 as amended Non-submission and/or falsification of this information Mosaic Potash Hersey may result in fines and/or imprisonment 1395 135<sup>th</sup> Ave Hersey MI 49639 Part 615 Oil/Gas Well □ Plugging Part 625 Mineral Well ☐ Change of Well Status Name and address of contractor/service company Type of well Field name Kalium (Mosaic Potash) Mosaic Potash Hersey Solution Mining 1395 135<sup>th</sup> Ave Surface location Hersey, MI 49631 NW 1/4 SW 1/4 NW<sub>1/4</sub> Sec 26 T 17N R 9W Township County Hersey Osceola Date plugging/change started Date plugging/change completed 5/20/09 5/28/09 DEQ employee issuing plugging permit or approving Change of Well Status Date issued Ray Vugrinovich 3/20/2009 Any change of well status which results in a change of production or a change in injectivity must include production or

injection test records. All records must include a narrative or daily chronology and signed certification noted on reverse.

				WELL PLUGGING	 3			
			(Hole	conditions after pl	ugging)			
	ATT ATTENDED			CASING				
	Casing size	Where	eset	Amount car	sing pulled	Depth casing cut/pe	rfed; or windo	ws milled
13 3/8" 814'								
		5267		0			_	
		4766'-7958'		4766'		4766'		
					- Company of the Comp			
202								
<u> </u>				PLUGS				
		Make and him			A platiation a true	Makima and times		Tarrad
Done	th of plug	Make and type of bridge or plug		nent plugs: type, ount of cement &	Additives type	Volume and types of spacers/flushes	Wait time	Tagged Top?
Bottom	Top	or pridge or plug	ann	ount of cement & and percent mix water		of spacers/flustres	YV AN UITIE	Y/N
			100 Cook					Y
300	Surface		TUB Sacks	s of Class A		0	0	Y
	-			_			<del>                                     </del>	
	+			<u></u>			1	
			<del>                                      </del>				<u> </u>	
<u></u>					<del>-</del>			
		_						
					<del>-</del>		<del> </del>	
				-				
Check	if NORM or othe	er materials were left or	reinserted into	wellbore. If so, describe	e materials fully in the	Daily Chronology sect	on on revers	e.
		on and attach core des	_					

Mail completed original and three copies to the appropriate DEQ district office within 60 days after completion of plugging/change of a Part 615 oil/gas well or within 30 days of a Part 625 mineral well

OFFICE OF GEOLOGICAL SURVEY
MICHIGAN DEPT OF ENVIRONMENTAL QUALITY
PO BOX 30256
LANSING, MI 48909-7756

RECEIVED

AUG 1 8 2009

COMPLETE BOTH SIDES

API numb MI-133-30						Permit num 397-855-76					
Change was	s to: C	Convert current Production Disposal Secondary Storage Other		Remedi Pe Re	ANGE OF W ate well: of and test exist pair casing/cen	ting zone nent	Plugback New Disp	ondary reco age	zone	Collaps	ntal drain hole sed casing eam open hole
				Well ca	asing record -	BEFORE ch			_		
Cas	sing	Cem	ent		Perforati						
Size	Depth	Sacks	Туре	From	То	If plugged,	HOW?		Acid or fra	cture treatme	ent record
							_	_			
Cas	sing	Well casing r		TER change	(Indicate add		hanges d	only, comp	olete test	record)	
Size	Depth	Sacks	Туре	From	To	If plugged,	HOW?		Acid or fra	cture treatme	ent record
											_
						11					yn.
Total depth	Co	mpleted Fm	Well comp	leted for		Total depth	Соп	npleted Fm	Well	completed fo	PF
BOPD	MC	FGPD	inj Rate	Pre	ssure	BOPD	MC	FGPD	Inj A	ate	Pressure
_		LY PRODUCT	ON TEST R			DAILY INJE	CTION T	EST RECO	RD 🔲 Ir	njection well	Brine disposal
Date	Oil (bbls)	Water (bbls)	Gas (Mcf)	Pre Tubing	ssure Casing	Date	Bbls wo		Pres eginning	sure Ending	Specific gravity of water
			_								
							_				
Describe in deft in hole a	detail the dail	y chronology of our	change/plugg	ing, include da	DAILY CHRO ys shut down (if d etc Use additi	Describe excep	tions to iss	sued pluggir	ig instructio		tools tubing etc
Date	Narrativ	<del></del>				- <del>-</del>				AUG	<del>1 8 2009 —</del>
5/20/09 5/21/09	Set Big Set 10	Boy Cast ir O Sack Clas	s A plug@	6080'				4700		OFFICE OF GE	ENTAL QUALITY
5/22/09 5/27/09	Contac	ee point tool ot Mark Smit 5 sack plug	h (MDEQ)	His recor	nmendation	was to set	2 <sup>nd</sup> plug	100' into	the 7" c	asing.	180 sack plug
5/28/09	@ 387	5' Lay down	pipe and	set 180 sa	ck plug @ 3	375' Lay do	own pipe	e and set	180 sac	k plug@ 2	875' Lay down and set 200
	sack p	lug @ 1375'	. Lay dowr	pipe and s	et 228 sack	plug @ 87	5'. Lay 0	down pipe	e and se	t 108 sack	plug @ 300'.
of a plugged CERTIFICA	d well. ∖TION I stat	e that I am autholete to the bes	norized by sa	uid owner Th							
	title (printed Hicks Mine	or typed) efield Superv	risor	_	Author	ized signature	N.				Date 6/22/09
NOTE: Bon	ds cannot b	e terminated un	til plugging is	s completed,	cellar, rat and n	nouse holes, a	and pits fil	led, site lev	eled and	cleaned and r	ecords filed.

API numb						Permit num					
MI-133-3	G-A002			- OUA		397-855-76					
Change wa	as to: C	Convert current Production Disposal Secondary Storage Other		Remedia Per	NGE OF W ate well: If and test exis pair casing/cen er	ting zone	Plugback New Disp	ondary recove age	one	Collaps	atal drain hole ed casing eam open hole
				Well ca	sing record -	BEFORE c		<u></u>	_		
Ca	sing	Cem	ent		Perforat						
Size_	Depth	Sacks	Туре	From	То	if plugged,	, HOW?	Ac	d or frac	ture treatme	nt record
Са	sing	Well casing r		TER change	(Indicate add		changes o	only, comple	te test	record)	
Size	Depth	Sacks	Туре	From	То	If plugged,	, HOW?	Ac	id or frac	cture treatme	ent record
				N - 144	_						
		PETOP	OUANOE						011451		
Total depth	h Co	mpleted Fm	Well comp	leted for		Total depth	Con	npleted Fm	Well	completed fo	or
BOPD		FGPD	inj Rate		ssure	BOPD		FGPD	Inj Ra		Pressure
1	DA Oil	ILY PRODUCT Water	Gas		ssure	DAILY INJE	ECTION T	EST RECORD	Pres	jection well	Brine disposal Specific gravity
Date	(bbls)	(bbls)	(Mcf)	Tubing	Casing	Date	or Mcf		inning	Ending	of water
				_							
		_			. Marine Marine						
Describe in	detail the dai	ly chronology of	change/plugg		DAILY CHRO			sued plugging i	nstructio	ns Describe	tools tubing, etc
		run Include date									
5/28/09		nt top at surf	ace Cut a	ınd cap 9 5/	/8".				ECI	EIVE	D
										<b>1 8</b> 2009	
								ENV! OFFI	IRONM CE OF GE	ENTAL QUA OLOGICAL SU	ALITY IRVEY
of a plugge CERTIFIC	ed well. :ATION I sta	15 Supervisor o te that I am aut plete to the bes	horized by sa	aid owner Th						_	lity for the integrity
	title (printed Hicks Min	or typed) efield Super	 visor		Autho	orized signatur		Will.			Date 6/22/09
		e terminated ur		s completed,	cellar, rat and	mouse noies,	and pits f	iled, site level	ed and d	leaned and i	records filed.

OMB No. 2040-0042 Approval Expires 1/31/05

			LINUTE	D STATES	NVIRONMENTA			42 Approvai Expire	3 1/01/03	
			UNITE		:NVIHONMEN 17 /ASHINGTON, D		N AGENUY			
			ייות				T DI AM			
			PLU	GGING	AND ABAN					
	ddress of Fac	ility				Name and Add		ner/Operator		
Mosaic Pot	ash Hersey					Mosaic Potasi	h Hersey			
1395 135th	Ave					1395 135th Av	ve			
Hersey, Mi	49639					Hersey, Mi 49	639			
	_					, , , , ,				
			State		County				Permit Number	
	ell and Outline !	Jnit on	Mich		Osceola				MI-133-3G-	A002
Section P	lat - 640 Acres		1	cation Descripti						
l	N				of NW 1/4 of S					
			Locate well	i in two directio	ns from nearest lines	of quarter section a	nd drilling unit			
			Location	127	ft From (N/S)	S Line	of Ouarter	Section		
			And		) ft From (E/W)		of Quarter			
	·[[	;					"1			
<del>                                   </del>			TYF	E OF AUT	HORIZATION		WELL	Class I		
1				Individu	ial Permit		ACTIVITY	Y 🗌 Ha	zardous	
				<u> </u>				☐ No	nhazardous	
	·			✓ Area Per	rmit			Class II		
	<u>_</u>			Rule				Bri	ne Disposal	
									anced Recovery	,
								=	rocarbon Storag	
			Number	of Wells	19	_		✓ Class III	_	-
					12-15	Datash'	M(-0.51 - 1	<del></del>		
			Lease N	ame	Kalium (Mosaid	Potash)	Well Numb	ber 100	52	
	CAS	ING AND TUBIN	ig Recor	AD AFTER P	LUGGING		METHOD	OF EMPLACEM	ENT OF CEME	NT PLUGS
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT		TO BE LEFT IN V		HOLE SIZE		S. E.M. EAGEMI	J. Jane	
13 3/8	54	. S SE . GI III MELLE (F I	,	81		17 1/2		Balance Method		
			70	526		12 1/4	4 =	Dump Bailer Met	nod	
9 5/8	40			+	,	1		•		
7	23			4766-7958		8 1/2		Two Plug Method		
OF NEVET	TO DI LIC AND	 	\	Dlug #4	Diva #0	Dive #0	Dlug#4	Other #5	Diug #6	Dlug #7
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		D ABANDON D Viil Be Placed (inches)	AIA:	Plug #1	Plug #2 7" and 9 5/8"	Plug #3 9 5/8"	Plug#4 9 5/8"	Plug #5 9 5/8"	Plug #6 9 5/8"	Plug #7 9 5/8"
	ripe in winion Plug v i of Tubing or Drill Pi			6080	4871	4375	3875	3375	2875	2375
	nt To Se Used (each			100	165	180	180	180	180	200
	o Be Pumped (cu. F			118.5	172	186.9	186.9	186.9	186.9	212.7
Calculated Top				5546	4375	3875	3375	2875	2375	1875
	of Plug (if tagged, ft.)			5546 15.6	1 15	1.5	15	15	15	15
Sturry Weight (I	_b./Gal.) t or Other Material (C	class (II)		Class A	15 50/50 Poz	15 50/50 Poz	15 50/50 Pc		50/50 Poz	50/50 Poz
1			R PERF					CASING WILL I		
	From		1	To		Fror			To	,,
	1 10111			10			.,		10	
			1							
	_						1			
Estimated	Cost to Plug W	'ells	MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MA		Della CROMO DIMO DI NO DI DI		\$10	00,000		
					CERTIFICA	TION				
	I certify under th	e penalty of law th	at I have ev	amined and a	m familiar with the	information sub-	nitted in this	document and		
	•	and that, based on								
		information is true					_			
		n, including the pos		-		_		J		
	-1-4 90(4)	(Diagonal)		Interest					In-to or	
Name and Offic		(Please type or print)	,	Signature	Sill hi	·//			Date Signed	1-100
William Hi		ld Supervisor		l n	Man Mas	<i>‰</i>		and mosts allow the	0/24/	2009
EPA Forr	n 7520-14 (F	łev 8-01)						PECI	IVEU	

AUG 1 8 2009

OMB No. 2040-0042 Approval Expires 1/31/05

			UNITE		NVIRONMENTA		N AGENCY			
			ווום		'ASHINGTON, D <b>AND ABAN</b>		TDIAN			
Name and f	Address of Easi	lih.	PLU	GGING	AND ADAN	Name and Add		or/Operator		
	Address of Faci tash Hersey	iiity				Mosaic Potas		si/Operator		ì
1395 135th	•					1395 135th A	-			
Hersey, Mi	49639					Hersey, Mi 49	639			
			State		County	l			Permit Number	
	ell and Outline t	Jnit on	Mich		Osceola				MI-133-3G-	A002
Section P	lat - 640 Acres			cation Description		00 T47	N. DOIA			
	N	, , ,			of NW 1/4 of S					
1	: :		Surface	in the direction	is from fleatest filles	or quarter section is	inc drining drin			
			Location	1274	ft From (N/S)	SLine	of Quarter Se	ection		
			And	660	ft From (E/W)	W Line	of Quarter Se	ection		
X			TVP	E OF AUT	HORIZATION		WELL	Class I		
			'''	_	al Permit		ACTIVITY		ardous	
	<del>-                                    </del>	<del>- ;   ;   }</del>	1	Individu	ai Permit		ACTIVITY	=	hazardous	
			İ	✓ Area Per	mit			Class II	mazar acas	
				Rule					e Disposal	
† †				Raic					nced Recovery	
<del> </del>							İ		ocarbon Storag	
			Number	of Wells	19	<u>}</u>		/	ocarbon storag	
	, ,		ļ. "		12.11 (8.6 )	. Data ala		✓ Class III		
			Lease Na	ame	Kalium (Mosaid	c Potash)	Well Numbe	er 1032		
	CAS	ING AND TUBIN	IG RECOF	RD AFTER P	LUGGING	3//2003	METHOD O	FEMPLACEME	NT OF CEMEN	IT PLUGS
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT	)	TO BE LEFT IN W	ELL (FT)	HOLE SIZE				
13 3/8	54			814	1	17 1/2		alance Method		
9 5/8	40			5267	7	12 1/4	<b>-</b>	oump Bailer Meth	od	
7	23			4766-7958		8 1/2	<b>⊣</b> _	wo Plug Method		
CERTAIN	TO BLUC AND	D ABANDON D	\ATA.	Di., a #0	Div. 2 # 0	Diva # 10	<del></del> _	Other		1
		Vill Be Placed (inches)	AIA.	Plug #8	Plug # 9 9 5/8"	Plug # 10 9 5/8"	Plug # 11 9 5/8"			1
$\overline{}$	n of Tubing or Drill Pi			1875	1375	875	300			
	nt To Be Used (each			200	200	228	108			
	To Be Pumped (cu. Ft	)		212.7 1375	212.7 875	244.2 300	127.4 Surface		-	
Calculated Top	of Plug (if tagged, ft.)			1373	0,3	300	Surface		1	<del> </del>
Slurry Weight (				15	15	15	15.6			
	t or Other Material (C			50/50 Poz	50/50 Poz	50/50 Poz	Class A	1		•
Li:		HOLE AND/O	# PERF( 		ITERVALS AN	1		ASING WILL B	_	any)
	From			То		Fro	m		То	
<u> </u> 										
			İ			1		1		
			1			1	00.000			/FN
Estimated	Cost to Plug W	elis				\$1	00,000	<u> </u>		
ı									AUG 18?	009
					CERTIFICA	TION		<b>⊑</b> N1/16	RONMENTAL	QUALITY
	Loopiderender	o nonalty of lawy	at I have are	amined and -			millad in this di	ضحرار م	E OF GEOLOGIC	AL SURVEY
		e penalty of law the						ocument and		
		information is true					•			
		, including the pos						•		
Name and Offi	cial Title	(Please type or print)	1	Signature /	, /	- 16			Date Signed /	<del>, –</del>
William Hi		ld Supervisor		1/1/1	lein Ihr	ls.			6/24/7	219
EPA Forr	m 7520-14 (F	lev. 8-01)		1 81/14/40	3400	~			1-/-//	~/



1934 Commercial Drive • Mt. Pleasant, MI USA 48858 Phone: 989/775-0940 • Fax: 989/773-0943 midstatetools@msn.com

## **FIELD PLUGGING SUMMARY**

COMPANY /// Done					<u>/ 3 / </u> Jo			
WELL NAME / /+= = = = =	ricot	<u>(_,i_, )</u> ,	C. Miller	NO	NO			
LOCATION								
CONTRACTORS NAME	E 11 1	As Cale of						
JOB DESCRIPTION _ * ( ) - *	5 /7 ( )	(£,)						
PLUG TO ABANDON	PLUG #	PLUG #	PLUG #	PLUG #	PLUG #	PLUG #		
SIZE OF PIPE IN HOLE	7"							
CALCULATED TOP OF PLUG FT.	5544							
DEPTH TO BOTTOM OF PLUG FT.	4080	***						
SACKS OF CEMENT USED	100							
SLURRY VOLUME USED BBLS	1.5							
TYPE OF CEMENT USEO	14							
AVER. SLURRY WT. LB./GAL.	15 6				T			
TYPE OF SPACE USED	FW				*	<u> </u>		
FEET OF FILL IN HOLE	534							
SIZE OF TUBING USED	31/2							
TUBING VOLUME DISP. BBL.	41.		1					
COLLEGE DATA			DEPTH OF O	DUEGZE ENTOY				
SQUEEZE DATA				QUEEZE ENTRY				
NO OF SACKS SQUEEZED	· / N . i	1 1 1	NAX PSI UF :	SQUEEZE		41 . A 12N .		
PHOCEDURE USED R.	<u> </u>	1136 -	1 2	1. 11/2 1 . 6 4	E/K MIC	X (3 ) 1(4, 2		
PROCEDURE USED FOR ALL STORY	<del>r ////////////////////////////////////</del>	and the second	<u> </u>		a wy 41			
Dr. AC. H., N. S. LTI.	1 Cano		4		NECE			
					The Same of these	A profess them.		
					AUG 18	7009		
		_			ENVIRONMEN			
<u> </u>					OFFICE OF GEOLG	GICAL SURVEY		
TOTAL MATERIAL USED	- E7	100	1. C. 101	. 11 × 5.1	- Carlot			
					<u> </u>			
DATE OF JOB COMPLETED	-11.09			270				
PUMP #			BULK #					
CEMENTER JASINHA								
COMMENTS	_							
		_						

THANK YOU!



1934 Commercial Drive • Mt. Pleasant, MI USA 48858 Phone: 989/775-0940 • Fax: 989/773-0943 midstatetools@msn.com 2995

↑ FIELD INVOICE

Company _//osrt	Date	5-21-01
Send Invoice To	P/N#	
Address	Job #	
Lease Name // Control	.). 1) Lease #	1032
Contractors Name 1725 Aug. Roll Hocks		<del></del>
State County Oceola Ti	wp Section_	
Open Hole Size	In Stop Plug At	Ft.
Casing Size	in Depth_	Rt
No. Sacks Cement Per Sack \$	/ / 50 Price \$_	1.1.0
No Sacks 65/35 Per Sack \$	Price \$	
Sacks Chloride Per Sack \$	Price \$_	
No Gals HCL,%, Per G	lal Price \$_	
	Price \$_	
	Price \$	
	Price \$	
	Price \$_	
	Price \$_	
	Price \$_	
Cu. Rt. Handling Charge @\$ / 30 × 100	Price \$_	100 00
Hauling 9400 # Tons x	<u>4</u> 7 Miles	
At \$ / うつ Per/Ton Mile		394 30
Pump Truck Service Charge	Price \$_	2.000
Pump Truck Mileage 1 Till Kanas 11211165	X 1 -1 / Price \$_	308.54
Comments: / Tril : = EEEX! / EE		
brio	لي Total \$_	4,95,60
Max PSI //CO		
Arrive on Loc.	Start	KELEIVED
Complete Job 27.59	Operator $I_{I,I,I} = I_{I,I}$	AUG 1 8 2009
		ENVIRONMENTAL QUALITY
Customer Signature	Date	121.19



1934 Commercial Drive • Mt. Pleasant, MI USA 48858 Phone: 989/775-0940 • Fax: 989/773-0943 midstatetools@msn.com

## FIELD PLUGGING SUMMARY

VELL NAME				NO _	# 10.32	<u> </u>
OCATION						
CONTRACTORS NAME	y 11. ck					
OB DESCRIPTION						
PLUG TO ABANDON	PLUG # )	PLUG #	PLUG #	PLUG #	PLUG #	PLUG #
SIZE OF PIPE IN HOLE	7 5%	7/8	94	1/3	776	- entrocom:
CALCULATED TOP OF PLUG FT.	1375	35.25	3325	2 8 75	732	
DEPTH TO BOTTOM OF PLUG FT.	1871	3.75	3828	:375	1875	
SACKS OF CEMENT USED	145	130	1 % (.	180	150	
SLURRY VOLUME USED BBLS	ai) 5	33 (	2.33	ا د د	3 3 3	
TYPE OF CEMENT USED	36/50	5.75	24/52	Sufsi	50/50	
AVER. SLURRY WT. LB./GAL.	1.5	10	جا ب	15	1.5	
TYPE OF SPACE USED	1 01	1 60	fr w	(1)	Ful	
FEET OF FILL IN HOLE	756	500	500	500	ن ر	
SIZE OF TUBING USED	32	3/2	37	32	37,	
TUBING VOLUME DISP. BBL.	321			21.3	17.6	
				***************************************		
SQUEEZE DATA				EEZE ENTRY		_
NO OF SACKS SQUEEZED			MAX PSI OF SO			
PROCEDURE USED Brok L						
165 sx 50150 0	place to	1373 FOR	y 1, 457;	13:505	C I to Alberto	
prop 11 But FU P	2, 1 . 2 . 2 . 2 . 2	130 31 64	50/50	1 202 131	end	
and Report 3	ne: 1. 211	P. H.r.	500	Zach 1.0	41	
Try of last Plan			Ar last p	1. p. 11	(d) 51 11.	5
W.H TRP on	16 in Or	7		<u> </u>		
		100	(a. 1. 3. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.			
TOTAL MATERIAL USED	3 5 37					
	<u> </u>	f +, _i	375			
					<u> </u>	
	5 27 67 <u></u>		TICKET NO			
PUMP # <u>/35</u>			BULK #	5 > / 3 <u>5 / </u>	391 / 12	<u>.</u> )
CEMENTER 3.11 Nos					RECEIV	
COMMENTS					2 3 5m W 2m 1 W	them the
					AUG 182	009 -
		THANK			ENVIRONMENTAL OFFICE OF GEOLOGIC	AL SURVEY
		ILIAINE	L LLALL!			



1934 Commercial Drive • Mt. Pleasant, MI USA 48858 Phone: 989/775-0940 • Fax: 989/773-0943 midstatetools@msn.com 7892

## FIELD INVOICE

Company		Date	5 27-67
end Invoice To		P/N#	
		 Job #	
		Lease #	1032
Contractors Name 3.11, 11			
	y (Scalla Twp Hersey	Section	
Open Hole Size		In Stop Plug At	Ft
Casing Size		in Depth	Ft
SUZSD No-Sacks-Germent 8555	Per Sack \$ // 50	Price \$	10177.50
No Sacks 65/35	Per Sack \$	Price \$	
Sacks Chloride	Per Sack \$	Price \$	
No Gals HCL	,%	Price \$	
	1	Price \$	415
		Price \$	
		Price \$	
		Price \$	- VXYM-Min-1
		Price \$	
Cu Ft Handling Charge @ \$	x 883	Price \$	885.00
Hauling	28_5 #Tons x 5.5	Miles	
	Per/Ton Mile	Price \$	2351.25
Pump Truck Service Charge		Price \$	3000. "
	polls 12 1 2 75	Price \$	302.50
Comments: Plus Jell F.	on 4371 to 2375		
11.13 885 SV 5	Uso per Bland	Total \$	16716.25
Max PSI /666 / 1	11., 251		RECEIVE
Arrive on Loc. // // // //	,	6 36 Am	
Complete Job 2.6: 22	7		AUG 1 8 2009
Cementer $P_{S}$ , $P_{S}$	Operator Joe	1 . k. On a	77. D. PNVIRONMENTAL QUAI OFFICE OF GEOLOGICAL SUR
	Operator Jack	1 - k - 677 - 6	OFFICE OF GEOLOGIC

# CEMENTINE

# **Central Michigan Cementing Services**

1934 Commercial Drive • Mt. Pleasant, MI USA 48858 Phone: 989/775-0940 • Fax: 989/773-0943 midstatetools@msn.com 2893

## FIELD INVOICE

Company		Date	5-28-07
Send Invoice To_	• • • • • • • • • • • • • • • • • • • •	P/N#	
Address		Job #	
Lease Name		ease #	1032
Contractors Name B.H., W.ck S			
State 171 County 05 Ccol6 Twp	Husgy	Section	
Open Hole Size	In Stop	Plug At	Ft
Casing Size 95/8 Prosped 14.60	3 <u>% ) }</u> tr	n Depth	Ft
No Sacks Cement	11.80	Price \$	/2//2
No Sacks 65/35 50/50 770 Per Sack \$	11 50	Price \$	8516
Sacks Chloride Per Sack \$		Price \$	
No Gals HCL,% Per Gal		Price \$	
25# 5/50/	\$ 2:00 LB	Price \$	50.4
		Price \$	
		Price \$	
		Price \$	
		Price \$	
		Price \$	
		Price \$	265 ms.)
Cu Ft. Handling Charge @ \$ 1.00 X 8 9 8		Price \$	818.00
Hauling 3 S . 5 # Tons x	5 5	Miles	
At \$ Per/Ton Mile		Price \$	2928.75
Pump Truck Service Charge 151 6 hr. co loc-	3060. 50127	Price \$	0 1/1
Pump Truck Mileage 2: 55 x 2 x 2 > 55		Price \$	302.51
Comments: $\frac{1}{2^{3/2}} \frac{1}{2^{3/4}} \frac{1}{1$	sa Solso je.	Total \$	13881.25
Max PSI 300			Thonk You
Arrive on Loc. 8 CO Am	Start 8 15 A-		
Complete Job 4.00 pm 5 28-09			
· ,	peratori,,	611 "	71)
RECEI	VED	<u>~ /.</u>	
Customer Signature / /U AUG 1 8	2009 Date_	2/28	7.7



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## **FIELD PLUGGING SUMMARY**

COMPANY					<u>78 - 0 1 </u> JOB	
WELL NAME Pala A A				NO		
		COUNTY _	Osciola	STATE,	////TWP/	101301
CONTRACTORS NAME	11.66.					
JOB DESCRIPTION	play to	Amaden				
PLUG TO ABANDON	PLUG #	PLUG #	PLUG #	PLUG #	PLUG #	PLUG #
SIZE OF PIPE IN HOLE	948	9/8	9 78	9 7/8	9 7/8	V II KDITTHAY
CALCULATED TOP OF PLUG FT.	1875	1375	375°	300	Sur	
DEPTH TO BOTTOM OF PLUG FT.	2375	1875	1375	875	300	
SACKS OF CEMENT USED	200	200	200	228	108	
SLURRY VOLUME USED BBLS	32.4	3).5	329	143.5	22.7	
TYPE OF CEMENT USED	50/30	50/50	50/50	50/50	1	
AVER. SLURRY WT. LB./GAL.	15	15	15	15	15.6	
TYPE OF SPACE USED	rw	FW	FN	FW	Ful	
FEET OF FILL IN HOLE	500	5-0	500	575	300	,
SIZE OF TUBING USED	3% 00	3/1 00	3/2 00	3/2 DP	5% DP	
TUBING VOLUME DISP. BBL.	131	10.2	b 5	22	31EF	
SQUEEZE DATA	Cicolation	MAN A	MAX PSI OF SI 16 1.00 10 x 200 200 200 200 225 200	x 50/30 sx 50/30 8 sx 50/30	200 sx SUJ 202 202 202	
TOTAL MATERIAL USED		50/30 SX. Class	7.	310 01		
DATE OF JOB COMPLETED			TICKET NO _	7893		
			BULK #	55 / 392	59/ /	105
PUMP #						
	· f s					
PUMP #         '/ 3 8'           CEMENTER         '3.11 ½ 350           COMMENTS         \$ \$ 3 5 5 5		and floor	- d., B.	are lett	en locales	rj
CEMENTER 3. 11 Pusso		and floor	n der Bi		EIVED	*1



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## FIELD PLUGGING SUMMARY

NELL NAME Has sy that								
	COUNTY STATE TWP.							
<del>-</del> -				<u>f</u> SIMIE_	VV			
ONTRACTORS NAME ////								
OB OESCRIPTION For the second	3 / 1 hom d	<u> </u>						
LUG TO ABANDON	PLUG#	PLUG #	PLUG #	PLUG #	PLUG #	PLUG #		
IZE OF PI <u>p</u> e in hole	77''			<u></u>				
ALCULATED TOP OF PLUG FT.	5544							
EPTH TO BOTTOM OF PLUG FT.	6080							
ACKS OF CEMENT USED	100							
LURRY VOLUME USED BBLS	21							
YPE OF CEMENT USED	7-1							
VER, SLURRY WT. LB./GAL.	1:16							
YPE OF SPACE USED	1=11				¥.			
EET OF FILL IN HOLE	534							
SIZE OF TUBING USED	372							
UBING VOLUME DISP. BBL.	411.1		Topic and the state of the stat	44				
ROCEDURE USED A STORE OF THE ST	+ 100:16.	11.75	to Barrey	614 600	5 my 41	KO 3 10		
TOTAL MATERIAL USED		/00	1 ( 12					
DATE OF JOB COMPLETED	21.09				) <u> </u>			
PUMP #/S								
COMMENTS					RECEIV	/ED		
					<u>AUG 182</u>	009		



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FIELD INVOICE

ompany	Date	J-21-21
end Invoice To		
ddress	Job #	
ease Name // Company /		103 Z
tate County Ciccola Twp	Section	
pen Hole Size	_In Stop Plug At	Ft.
asing Size	In Depth	Ft
lo Sacks Cement	Price \$	1, 1:31
o. Sacks 65/35 Per Sack \$	Price \$	<u> </u>
acks Chloride Per Sack \$	Price \$	
o Gals HCL,%Per Gal		101, 100
	Price \$	· · · · · · · · · · · · · · · · · · ·
	Price \$	T
	Price \$	
	Price \$	
	Price \$	
7.79000000000	Price \$	
	Price \$	
bu. Ft. Handling Charge @ \$ 100	Price \$	100 10
0.44 -	Miles	
At \$ / 50 Per/Ton Mile56	Price \$	3941 30
Pump Truck Service Charge	Price \$	and Commence
Pump Truck Mileage K. Trunksings 112111/18 X 2 200	/c Price \$	306.11
Comments: / Tril / Late Comments: / Tril / Late Comments		
Brion	Total \$	7/10/1/2/1
Max PSI		RECEIVE
Arrive on Loc Start	100	• • • • • • • • • • • • • • • • • • • •
Complete Job 7 27 27 20	<u>)_                                    </u>	AUG 1 8 2009
Cementer Operator Operator	c = T, $c$ .	ENVIRONMENTAL QUAL OFFICE OF GEOLOGICAL SUR
Customer Signature		31 . 7



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## **FIELD PLUGGING SUMMARY**

ELL NAME PARTY			NO # 11.32				
OCATION		COUNTY _	CSKerla	STATE_	<u>, /2 /</u> TWP	Horsey	
ONTRACTORS NAME	y 11.4 k					·	
OB DESCRIPTION	Tre to	Idention		M Aur			
PLUG TO A BANDON	PLUG # )	PLUG #	PLUG #	PLUG #	PLUG #	PLUG #	
SIZE OF PIPE IN HOLE	7 9 1/2	5×	778	1/4	776		
CALCULAT ED TOP OF PLUG FT.	1375	15.75	337.7	2875	737		
DEPTH TO BOTTOM OF PLUG FT.	1571	13.25	3838	573	1875		
SACKS OF CEMENT USED	145	130	1 4 (.	14.	15.		
SLURRY VOLUME USED BBLS	.6	33 (	فديفي	5.3.	.iii		
TYPE OF CEMENT USED	50/50	n / %	30/30	50/50	30/30	_	
AVER. SLU RRY WT. LB./GAL.		7.5	75	/5	2.5		
TYPE OF S PACE USED	1661	( 140	1-w	FW	f wit		
FEET OF FILL IN HOLE	256	SOU	500	500	Ĵ L		
SIZE OF TLI BING USED	5/	5/2	37	3%	3%		
TUBING VOLUME DISP. BBL.	327	: 9	Š	27.3	16		
PROCEDURE USED Brook (  165 st 50/50 D  Prop 11 BUL FU B  And Report 3,  Type of last Plan  Lift IN P	2.1 " puris 2.1 " puris 2.1 " puris 2.2 " 1. rue	1375 TO 186 SI ON 201100	# 10 4375 50/50 500	13,504 1 per 1310 Fach for	Carpeton on		
TOTAL MATERIAL USED		50/50	: 25				
	. ,		<u></u>		.,, (.,, 112		
DATE OF JOB COMPLETED	27 01		TICKET NO				
DATE OF JOB COMI LETED			BULK #	25/31	391 / 3	, , , , , , , , , , , , , , , , , , ,	
PUMP #							
PUMP # (/ 3.5) CEMENTER (3.7) (4/5) COMMENTS	se 17			<b></b>	ECEIVE		

# GENENING GENERAL MICHIGAN

# **Central Michigan Cementing Services**

1934 Commercial Drive • Mt. Pleasant, MI USA 48858 Phone: 989/775-0940 • Fax: 989/773-0943 midstatetools@msn.com

1872

## FIELD INVOICE

nd Invoice To	P/ <b>N#</b>	
dress		
ase Name Pot AsM		
intractors Name 3.11 y 1/ c.h.		
ate Twp Twp		
pen Hole Size	_In Stop Plug At	F
asing Size	In Depth	F
SOUSD Sacks Gement 855 4 Per Sack\$ // 50	Price \$	10177.50
o Sacks 65/35 Per Sack \$		
acks Chloride Per Sack \$		
o Gals HCL,%, Per Gal		
APE MATERIAL		
<u> </u>		
		THE STATE OF THE S
No. Et Handlian Obassa @ # 1/1/4 1/1 5 1/2 4/	Price \$	53 at 2 5 4 4
	Price \$	333.
fauling 28.5 # Tons x 5.5	Miles	2351.25
At \$ / S v Per/Ton Mile		3000.
Pump Truck Service Charge Pump Truck Mileage <u>KT 55 /// X 2 2 2 23</u>		302.50
Comments: 1200 (101) From 4871 15 2075	Price \$	302.
11.14 883 St 51/80 Per wind	Total \$	16 716.25
Max PSI 1600 Condition psi		RECEIVE
Arrive on Loc 16 1 10 10 10 10 10 10 10 10 10 10 10 10 1	*, 1	AUG 1 8 2009
	,- b. / 1 × 1	ΔΠ3 1 0 2003
Complete Job 2.6: 201 Cementer 12.11 12.0.23 Operator 403.1		ENVIRONMENTAL QUA



1934 Commercial Drive • Mt. Pleasant, MI USA 48858 Phone: 989/775-0940 • Fax: 989/773-0943 midstatetools@msn.com 2893

## FIELD INVOICE

Company	Dateう : メ <u>ァ</u>	07
send Invoice To	P/N#	
Address	Job #	
Lease Name	Lease # /032	
Contractors Name 13.11 , W. ( & S		
State 771 County 05 (cota Twp. ///.r.s	<b>₫ y</b> Section	
Open Hole Size	In. Stop Plug At	Ft
Casing Size 95/4 13109, J 16160 3/4	D p² In Depth	Ft.
No Sacks Cement	Price \$ / 2 / 2	
No Sacks 65/35 50/50 7 /0 Per Sack \$	Price \$ \$ \$ 1.6	
Sacks Chloride Per Sack \$	Price \$	
No Gais HCL,%	Price \$	
25 4 Sugar 12:0	<u>ø_ ℓ,β</u>	
	Price \$	
	Price \$	
	Price \$	
	Price \$	
	Price \$	
	Price \$	
Cu Ft Handling Charge @ \$ 1.00 X 8 18		18.00
Hauling		_
At \$ Per/Ton Mile		78.75
Pump Truck Service Charge 1.1 (h). co lace 5666.		£
Pump Truck Mileage 27 55 x 2 x 2 > 5	Price \$	5 /
Comments: $W_{ij} = $	5e / 1 3 8 8 Total \$ 1 3 8 8	1 25
Max PSI $3\mathcal{O}\mathcal{C}$		- le :/ :
•	8 15 2m	111 100
	<u> </u>	
Complete Job 400 pm 5 78 09		
Cernenter Operator Operator	J. 5 - k - (11 - 11)	
Customer Signature /// 12 2002	5/20/0	
Customer Signature / /// 49 AUG 1 8 2009	Date	



1934 Commercial Drive • Mt. Pleasant, MI USA 48858 Phone: 989/775-0940 • Fax: 989/773-0943 midstatetools@msn.com

## **FIELD PLUGGING SUMMARY**

DICATIONONTRACTORS NAMEONTRACTORS NAMEONTRACTORS NAMEONTAGE _	1/ . 6.	1 mindon		NO STATE/		
OCATIONONTRACTORS NAMEOLIG	1/ c k	1 mindon				
OB DESCRIPTION	PLUG#					
A STATE OF THE STA	PLUG #					
LUG TO ABANDON		D1110 //				
	G 4/3	PLUG #	PLUG #	PLUG #	PLUG #	PLUG #
SIZE OF PIPE IN HOLE	1/3	9/8	948	91/8	978	
CALCULATED TOP OF PLUG FT.	1875	1375	375	300	Sur	
DEPTH TO BOTTOM OF PLUG FT.	2375	1875	1375	575	300	
SACKS OF CEMENT USED	200	200	200	228	108	
SLURRY VOLUME USED BBLS	37.7	3).9	379	113.5	22.7	
TYPE OF CEMENT USED	50/50	50/50	50/50	50/sv	1	
AVER. SLURRY WT. LB./GAL.	15	15	15	15	15.6	
TYPE OF SPACE USED	الساع "	FW	FW	FN	FW	
FEET OF FILL IN HOLE	500	500	500	575	300	
SIZE OF TUBING USED	3/2 13/	3/2 07	3/2 07	3% DP	31:00	<b>±</b>
TUBING VOLUME DISP. BBL.	133	10.2	<b>&amp;</b> 5°	22		
SQUEEZE DATA	Civilation	10 x 20 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	MAX PSI OF S  10 1 - 10 1 200 200 200 200 200 200 200 200 20	50/50 50/50 50/50 8 30/50 8 30/50 10/50	704 SX SVJ 202 202 202	150 po c
TO TAE WATERIAL OSED	108	54. (las	7.	ען דיו יין צ.		
	25		. //			1 - 1 - 1 - 1 - 1 / 1 / 1 / 1 / 1 / 1 /
DATE OF JOB COMPLETED	مسود المجاهد		TICKET NO.	7893		
PUMP # 1/3 8"	<del>.</del>		BULK #	<u> </u>	591 /	1203
CEMENTER 15. 11 Posse	· #1			,,		
COMMENTS SS 34.		ary Star	. d. , 3	Serc Leit	en locala	r1
<u> </u>			RECEI	VED		

THANK YOU AUG 18 2004

h	c	<u>∽</u> ,
u	E	<b>T.</b> 7

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY - OFFICE OF GEOLOGICAL SURVEY

MICHIGAN DEPARTMENT OF ENVIRONMENTAL	L QUALITY - OFFICE O	F GEOLOGICAL SURVEY	
RECORD OF WELL PLUGGING	Permit number	Well name and number	
OR CHANGE OF WELL STATUS	397-855-767 API number	Kalium 1032 (Mosai	c)
Required by authority of Part 615 Supervisor of Wells or	MI-133-3G-A002		
art 625 Mineral Wells of Act 451 PA 1994, as amended	Name and address of	permittee	
Non-submission and/or falsification of this information may result in fines and/or imprisonment	Mosaic Potash He	ersev	

Part 625 Mineral Wells of Act 451 PA 1994, as amended	Hame and address of permittee	
Non-submission and/or falsification of this information may result in fines and/or imprisonment	Mosaic Potash Hersev 1395 135 <sup>th</sup> Ave	
	Hersey MI 49639	
☐ Part 615 Oil/Gas Well ☐ Plugging		
□ Part 625 Mineral Well     □ Change of Well Status		
Name and address of contractor/service company	Type of well	Field name
Mosaic Potash Hersey	Solution Mining	Kalium (Mosaic Potash)
1395 135 <sup>th</sup> Ave	Surface location	
Hersey, MI 49631	NW 1/4 SW 1/4 NW1 /4	Sec 26 T 17N R 9W
	Township	County
	Hersey	Osceola
	Date plugging/change started	Date plugging/change completed
	5/20/09	5/28/09
DEQ employee issuing plugging permit or approving Change of Well Status		Date issued

Ray Vugrinovich 3/20/2009
Any change of well status which results in a change of production or a change in injectivity must include production or

injection test records. All records must include a narrative or daily chronology and signed certification noted on reverse

			(Hole conditio	PLUGGING ns after plug	iging)			
			C	ASING				
	Casing size	Where	set	Amount casin	g pulled	Depth casing cut/per	rfed; or windo	ows milled
13 3/8"		814'	0				_	
9 5/8 "		5267'	0	0				
7"	7" 4766'-7958'		4766'			4766'		
				LUGS				
		Make and type	Cement plugs		Additives type	Volume and types	1	Tagged
Dent	th of plug	of bridge or plug	amount of cen		and percent	of spacers/flushes	Wait time	Top?
Bottom	Тор	i or bridge or plag	mix wate		j and paream	0.0		Y/N
	6100'	BIG BOY CIBP		-		-	144	
6080'	5546'	BIG BOT 01BI	100 Sacks Class A	4		FW/ 41.1 BBL	0	N
4871'	4375'		165 Sacks 50/50 F			FW/ 32.4 BBL	0	N
4375'	3875'		180 Sacks 50/50 F			FW/ 28.9 BBL	0	N
3875'	3375'			180 Sacks 50/50 Poz		FW/ 25.0 BBL	0	N
3375'	2875'	_	180 Sacks 50/50 F			FW/ 21.3 BBL	0	N
2875'	2375'		180 Sacks 50/50 F			FW/ 17.6 BBL	0	N
2375'	1875'		200 Sacks 50/50 F	Poz		FW/ 13.9 BBL	0	N

Check if NORM or other materials were left or reinserted into wellbore. If so, describe materials fully in the Daily Chronology section on reverse.

Check if cores were taken and attach core descriptions

Mail completed original and three copies to the appropriate DEQ district office within 60 days after completion of plugging/change of a Part 615 oil/gas well or within 30 days of a Part 625 mineral well

200 Sacks 50/50 Poz

200 Sacks 50/50 Poz

228 Sacks 50/50 Poz

OFFICE OF GEOLOGICAL SURVEY MICHIGAN DEPT OF ENVIRONMENTAL QUALITY

PO BOX 30256

LANSING, MI 48909-7756

RECEIVED

0

FW/ 10.2 BBL

FW/ 6.5 BBL

FW/ 2.2 BBL

AUG 1 8 2009

1375

875'

1875

1375'

	e	4
u	E	<u> 7.7.</u>

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY - OFFICE OF GEOLOGICAL SURVEY

## RECORD OF WELL PLUGGING OR CHANGE OF WELL STATUS

RECORD OF WELL PLUGGING	Permit number	vveii name and	number	Permit number   well name and number				
OR CHANGE OF WELL STATUS	397-855-767 Kalium 1032 (Mosaic)							
Required by authority of Part 615 Supervisor of Wells or	MI-133-3G-A002  Name and address of permittee							
Part 625 Mineral Wells of Act 451 PA 1994 as amended Non-submission and/or falsification of this information may result in fines and/or imprisonment	Mosaic Potash Hersev 1395 135 <sup>th</sup> Ave							
☐ Part 615 Oil/Gas Well ☐ Plugging ☐ Change of Well Status	Hersev MI 49639							
Name and address of contractor/service company	Type of well		Field name		.1157			
Mosaic Potash Hersey	Solution Mining		Kalium (Mo	saic Po	otash)			
1395 135 <sup>th</sup> Ave	Surface location				-			
Hersey, MI 49631	NW 1/4 SW 1/4	4 NW1/4	Sec 26	T 17N	R 9W			
	Township		County	W 17				
	Hersey		Osceola					
	Date plugging/change	started	Date plugging	change c	ompleted			
	5/20/09		5/28/09					
DEQ employee issuing plugging permit or approving Change of Well Status			Date issued	i				

Ray Vugrinovich Any change of well status which results in a change of production or a change in injectivity must include production or injection test records. All records must include a narrative or daily chronology and signed certification noted on reverse.

	OF ANIAIDA		(Hole	WELL PLUGGING conditions after pl	G ugging)	203	CONTRACTOR OF THE PARTY OF THE	A STATE OF THE STA
				CASING				
Casing size Where set Amount casing pulled Depth casing cut/perfed; or windows milled								
13 3/8" 814' 0								
9 5/8 " 5267' 0								
7"				4766'		4766'		
			_	PLUGS				
		Make and ty		ment plugs: type	Additives type	Volume and types		Tagged
	of plug	of bridge or p	olug am	ount of cement &	and percent	of spacers/flushes	Wait time	Top?
Bottom	Тор			mix water				Y/N
300	Surface		108 Sack	s of Class A		0	0	Y
								,
	1			- Indeposit				
	1							
					_			
					_			
	1							
					_			
Check if	NORM or othe	er materials were	left or reinserted into	wellbore. If so, describe	materials fully in the	Daily Chronology sect	ion on revers	;e.

Check if cores were taken and attach core descriptions

Mail completed original and three copies to the appropriate DEQ district office within 60 days after completion of plugging/change of a Part 615 oil/gas well or within 30 days of a Part 625 mineral well

OFFICE OF GEOLOGICAL SURVEY MICHIGAN DEPT OF ENVIRONMENTAL QUALITY

PO BOX 30256

LANSING, MI 48909-7756

AUG 1 8 2009

RECEIVED

API num MI-133-3						Permit num 397-855-76				
				CH/		VELL STAT				
Change wa	as to: [	Convert current Production Disposal Secondary Storage Other		Remedi Pe Re	ate well:  rf and test exis  pair casing/cel  ner	sting zone ment	Plugback New	ondary recove age	ne Horizo	ontal drain hole osed casing tream open hole
				Well ca	sing record	- BEFORE ci				105.17 <u>01</u>
	sing	Cem			Perfora					
Size	Depth	Sacks	Туре	From	То	If plugged,	HOW?	Aci	d or fracture treatm	ent record
						<del>                                     </del>	_			
		Well casing r	ecord - AF	TER change	(Indicate ad	ditions and c	hanges c	nly comple	te test record)	
Ca	sing	Cem			Perfora		gu	,	,	
Size	Depth	Sacks	Type	From	То	If plugged,	HOW?	Aci	d or fracture treatm	ent record
		ł								
						_		_	_	
		BEFORE	CHANGE			<u> </u>			CHANCE	
Total depth	1 (	Completed Fm	CHANGE Well comp	leted for		Total depth	Corr	pleted Fm	CHANGE Well completed f	or
							33,			
BOPD	İ	MCFGPD	Inj Rate	Pres	ssure	BOPD	MCF	GPD	Inj Rate	Pressure
		AILY PRODUCTI	ON TEST R	ECORD		DAILY INJE	CTION TE	ST RECORD	Injection well	Brine disposal
	Oil	Water	Gas	Pre	ssure		Bbls wa		Pressure	Specific gravity
Date	(sldd)	(bbis)	(Mcf)	Tubing	Casing	Date	or Mcf	gas Begi	nning Ending	of water
									_	
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			Ma		AILY CHR	ONOLOGY		WAATTE TO THE TOTAL THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE T		
Describe in left in hole a	detail the o	laily chronology of o	hange/plugg s pits filled s	ing, include da	ys shut down I	Describe excep	tions to iss needed	ued plugging ir	nstructions Describ	e r@ols\signature (fight)g etc
Date	Narra	tive			W. Control					NTAL QUALITY
5/20/09	Set I	Big Boy Cast in	on bridge	plug @ 610	00'			_	OFFICE OF GE	OLOGICAL SURVEY
5/21/09		100 Sack Class								
5/22/09		free point tool								
E 107100		act Mark Smith					, ,		_	
5/27/09										t 180 sack plug
5/28/09										2875' Lay down
3/20/03									5' Lay down pip .nd set 108 sacl	
of a plugged CERTIFICA	nder Part d well TION I s	615 Supervisor of	Wells or Pa	rt 625 Mineral	Wells Act 45	1 PA 1994, as	amended	, a well owner		ility for the integrity
Name and t		d or typed) nefield Superv			Autho	rized signature	il			Date 6/22/09
				s completed of	ellar, rat and i	mouse holes a	and pits fill	led site levels	ed and cleaned and	· · ·

API num	nber 3G-A002					Permit num 397-855-76				
				CHA	NGE OF W	VELL STAT		_		
Change w	vas to:	Convert current Production Disposal Secondary Storage Other		Remedi Pe	iate well:  rf and test exis  pair casing/ce  her	sting zone ment	Plugback New	ondary recover age	ne Horizo	ontal drain hole osed casing cream open hole
				Well ca	asing record	- BEFORE ch				
Ca	asing	Cen	nent	1100.00	Perfora		larigo			
Size	Depth	Sacks	Туре	From	То	If plugged,	HOW?	Aci	d or fracture treatm	ent record
						_				
						<del> </del>				
							_			
		Well casing	record - AF	TER change	(Indicate ad	ditions and c	hanges d	only, complet	e test record)	
	asing	Cen	nent		Perfora	tions			*** ,	
Size	Depth	Sacks	Туре	From	То	If plugged,	HOW?	Acid	d or fracture treatm	ent record
							_			
										_
			CHANGE						CHANGE	
Total depti	h C	ompleted Fm	Well comp	leted for		⊤otai depth	Com	pleted Fm	Well completed f	or
BOPD	-	CFGPD	Inj Rate	Pro	ssure	BOPD	I MC	GPD	Inj Rate	Pressure
3010	141	or dr b	I inj nate	1 - 10	oouic	BOED	IWICI	GFD	I III nate	Flessule
	D/	AILY PRODUCT	ION TEST RI	ECORD		DAILY INJE	CTION TE	EST RECORD	Injection well	Brine disposal
	Oil	Water	Gas	Pre	ssure		Bbls wa	ater	Pressure	Specific gravity
Date	(bbls)	(bbls)	(Mcf)	Tubing	Casing	Date	or Mcf	gas Begir	nning Ending	of water
			ļ			1				
		+ +			i	1	-		-	
						***				
	<u></u>									
					3511 1/0110	01101 0017			200-00-00-00-00-00-00-00-00-00-00-00-00-	
Describe in left in hole a	detail the da	ily chronology of run Include date	change/pluggi es pits filled su	ng, include da	DAILY CHRO ys shut down I etc Use addit	Describe except	tions to iss	ued plugging in	structions Describe	e tools tubing etc
Date	Narrati					, ,		-Down		
5/28/09	Ceme	ent top at surf	ace Cut a	nd cap 9 5/	/8"				_	
		·		•						
									AUG 1 8 200	)9
								ENV OFF	IRONMENTAL Q	UALITY SURVEY
of a plugge CERTIFICA	ed well. ATION 1 sta		horized by sa	id owner Thi					has continuing liab	oility for the integrity tated herein are
Name and	title (printed	<u> </u>			Autho	rized signature	/ /			Date 6/22/09
				completed of	cellar, rat and	mouse noies	and pits fill	led site levele	d and cleaned and	

Wells falsificat Par Change of Plug bar Convert Last product 3/13/200 Brief describer Set CIBF 7" casing	CHANGE WE PLUG AND A by authority of Part 615 S s, of Act 451 PA 1994, as ion of this information ma rt 615 Oil or Gas Well well status requested to: ack Perforate t to Perforate t to Cotion/injection rate and typ 7 200 GPM 1.20 iption of project P @ 6100' Set 100 S of Cement continous olug to surface. Cut of	BANDON WI Supervisor of We samended.Non-s y result in fines a  Pa  Tempora Other oe of fluid OO Gravity Bri ack Class A p 50/50 poz plu	OR ELL  Ils or Part 625 Mineral submission and/or and/or imprisonment art 625 Mineral Well  Irily abandon P&A  Dlug. Cut and pull as to 300' Set	Permit number 397-855-76 API number MI-133-3G- Name and add Mosaic Pota 1395 135 <sup>th</sup> Hersey, Mic Well name and Kalium 1032 Well location	A002 Press of permittee Ash Hersey Ave higan 49639 I number C (Mosaic Potash) W 1/4 of NW 1/4	Type of well Solution Mining	
Mosaic F	otash Hersey					5/1/2009	
			CASING AND CEN				
Hole dia	Casing dia & wt/ft	Depths set		t quantity, type, a	additives	Cement top	Perforations
17 1/2"	13 3/8" 54#	814'	650 Sacks Lite A			Surface	
12 1/4" 8 1/2"	9 5/8" 40# 7 " 23 & 29#	5267'	2475 Sacks Lite A	<u> </u>		Surface	7050 70001
0 1/2	7 23 & 29#	7958'	550 Sacks H			5700'	7850-7880'
Formation i	record (formation and dep	th of top, oil, gas	and water shows, etc.):				
Set CIBF casing lay cement fr	osed procedures: P @ 6100'. Set 100 S ying down Set contire rom 300' to surface	nous 215 sack Cut off wellhe	c plugs of 50/50 poz	from 7" cut o		et 115 Sack plug	
Set CIBF casing lay cement fr	e 6100'. Set 100 S ying dawn Set contir	nous 215 sack Cut off wellhe	c plugs of 50/50 poz	from 7" cut o		et 115 Sack plug	of Class A
Set CIBF casing lay cement from the comment of the case of the cas	P @ 6100'. Set 100 S ying down Set contir rom 300' to surface	nous 215 sack Cut off wellhe ntative):	k plugs of 50/50 poz ad and cap 9 5/8" ca	from 7" cut o	ff depth to 300' Se	Date: 3/20/0	of Class A

EQP 7200-6 (rev 8/2004) side 1

MICHIGAN DEPARTMENT OF ENVIRONME	<u>ITAL QUALITY - OFFICE OF GEOLOG</u>	GICAL SURVEY
APPLICATION TO:	\	number
☐ CHANGE WELL STATUS OR		-133-3G-A002
☑ PLUG AND ABANDON WELL	Well name and number	
	Kalium 1032 (Mosaic Pota	sh)
Continuation of	proposed procedures	
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		CO SISS IN IN SIZE BASE
		RECEIVED
		M se street, the

MAR 3 1 2009

ENVIRONMENTAL QUALITY OFFICE OF GEOLOGICAL SURVEY

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DE₫	MICHIGAN I	DEPARTMENT OF ENVIRONMENT				
	ST FOR TRAN	SFER OF PERMIT	Permit number M-397	Well type Brine Prod.	Current true vertice 7582	cal depth
Mineral Wells, Ad	ct 451 PA 1994 as am	pervisor of Wells or Part 625 ended Non-submission and/or ult in fines and/or imprisonment	Well name and num Kalium Hersey 1 Surface location	032	00	
Part 61	5 Oil/Gas Well	Part 625 Mineral Well	NW 1/4 SW Township Hersey		Section 26 T County Osceola	17N R9W
not be transferred to conditions at the ware This permit does	to persons not in comp ell site until compliand s not convey propert	ed upon compliance with the statutes pliance. A permit for a well shall not be is achieved. The acquiring permi y rights in either real estate or ma ive the necessity of seeking feder	t be transferred if the parte o	permittee is under no rent Organization Rep th <b>orize any injury to</b>	tice because of uns bort (EQP 7200-13) private property o	satisfactory or invasion of
		TRANSFER OF	A PERMIT FROM	:		
Name(s) of Selling	Permittee(s)				Fed ID.# or S S	S #
Kalium Chemic	als, Limited				38-3545577	
	,	wn State ZIP Code Telephone				
1395, 135th Av		·			231-832-375	5
Hersey, MI, 496					207 002 070	
All permits rights a	nd responsibilities are	discharged by:			/_	
	·			/ 1//		
Kalium Cha	mianla Limitad	Colin Howard		(St.	1.	16/04/2001
	micals, Limited Permittee	Colin Howard  Authorized representative	nama	Signatu	Ira 1	Date
r	emmee	Additionized representative	e name	Jognati	110	Date
F	Permittee	Authorized representative	e name	Signatu	ire	Date
F	Permittee	Authorized representative	e name	Signatu	ıre	Date
		TRANSFER (	OF A PERMIT TO:			
Name(s) of Acquiri	ing Permittee(s):				Fed ID#orS	3 #
IMC Potash He	ersey Inc				ME0132184	
Address: Number a	and Street City or Tov	wn State ZIP Code			Telephone	
	-				001 000 075	E .
1395. 135th Av					231-832-375	5
	owner or authorized r	epresentative of the owner of the wi	ell under this permit a	nd assume full respon	nsibility for the drilli	ng, operation, and
		_	-1 D11 O-mada			
BOND: Sing			al Bank of Canada			
🗵 Blan			087C00008	Amount\$	25,000	
	ement of Financial F					:
All permittee rights	and responsibilities a	re assumed by:		- /		
				Tad .	/ / /	
IMC Potash	Horooy Inc	Colin Howard				16/04/2001
	Permittee	Authorized representative	e na <b>m</b> e	Signatu	ire ,	Date
		/ Ida lottizod Topi odol italia	o marrio	0.5		
_						
F	Permittee	Authorized representative	e name	Signatu	ire	Date
F	Permittee	Authorized representative	e name	Signatu	ire	Date
F	Permittee					
	Permittee Permittee	Authorized representative  Authorized representative		Signatu Signatu		Date
	Permittee	Authorized representative	e name	Signatu		
	Permittee		e name RONMENTAL QUA	Signatu		
F	Permittee	Authorized representative	e name RONMENTAL QUA	Signatu	ire	
	Permittee	Authorized representative	e name RONMENTAL QUA MAY	Signatu LITY USE ONLY 0 8 2091	ire Distribution by DEQ Lansing	Date

EQP 7200-7 (Rev 3/99)

Mail Original and 3 copies to:

GEOLOGICAL SURVEY DIVISION MICHIGAN DEPT OF ENVIRONMENTAL QUALITY PO BOX 30256 LANSING MI 48909-7756

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## Form Approved OMB No. 2040-0042. Expires 6-30-98

MAY 3 0 1997

		UNITE	STATES ENV	'IRONMENTAL	PROTECTION	AGENCY			
				SHINGTON DC		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			
EPA				L REWORK RE					
	ADDRESS C	F PERMITTEE		NAME AND A		ONTRACTOR	<del></del> =		
IMC Kalium	Ltd			IMC Kalium, Lt	d				
1395 135th	Avenue			1395 135th Av					
Hersey, MI	49639			Hersey, MI 4	9639				
		TLINE UNIT O	NSTATE	COUNTY		PERMIT NUM	MBER		
SECTIO	ON PLAT — 6	40 ACRES	МІ	Osceola	Sceola MI-133-3G-A002				
	N		SURFACE L	OCATION DESC	CRIPTION				
i m			1			f Section26 T	ownship17N_Range9W		
	1111			No. de Contraction de la contr			ction and drilling unit		
X						•	-		
w H		ΠE	Surface Loca	tion <u>1274</u> ft from	(N/S) S_Lin	e of quarter se	ction		
			1	rom (E/W)_W	_				
			WELL ACTIV		Total Depth B		TYPE OF PERMIT		
	<del>                                     </del>	$\vdash$	Brine Di	sposal	7880	Individual			
	<del>++++</del>			ed Recovery	Total Depth A	X Area			
<u> </u>	S	<del></del>	1	rbon Storage	7880	1			
	Later manners and a second		X Sol'n Mir	-	Date Rework	Commenced	<b>-</b>		
			Lease Name	9	4/26/97		Well Number		
			Kalium Herse	ev.	Date Rework	Completed	1032		
				-,	4/28/97		1002		
			WELL CASING	RECORD - BEI			A SHAREST CONTRACTOR OF THE SHAREST CONTRACT		
	Casing	Ceme		Perforations		l	Acid or Fracture		
Size	Depth	Sacks	Type	From	To		Treatment Record		
13-3/8	814	650	Lite	110111	10		- regitter record		
9-5/8	5267	2475	Class A						
7	7880	530	Class A	7880	7875	4 SH/FT			
*	1	000	101633 A	1	, ,,,,,	7 01 01 1	- ANA		
	<del> </del>			ļ			18 11 E 2 VI		
			<u> </u>		1				
	\ <sub>\\</sub>	LL CASING RE	CORD AFTER	REWORK (Inc	licate Additions	and Changes	Onto		
C	asing	Ceme	1110/1111/041001	Perforations		and Onlanges	Acid or Fracture		
Size	Depth	Sacks	Туре	From	To		Treatment Record		
13-3/8	814	650	Lite	FIOII	10		Treatment Necold		
9-5/8	5267	2475	Class A						
7	7880	530	Class A	7880	7971	4 SH/FT	_		
	7000	550	Class A	7000	7871	430/21			
			<u> </u>						
200	<u> </u>		-						
	ecribo servici	congrations is	letail			Mire line less	list each time		
		coperations in c				Wire line logs,			
		heets if necess	ary		Log Type	5	Logged intervals		
	h casing out o				PFC		7878' - 7378'		
	/ith 5 3/4" mill	•		\					
	ole with THL.						_		
at 7892 PFC									
				CERTIFICATIO			•		
				amined and am f					
				uiry of those indi			_		
				curate, and comp			-		
penalties	for submittin	g false informat	ion, including the	e possibility of fir	ne and imprisor	ment. (Ref C	FR 144.32).		
NAME AND	OFFICIAL TIT	LE (Please type	or print)	SIGNATURE		0	DATE SIGNED		
Paul McMiller	1			thet!	ni Ma		05/22/97		
Minefield Sun	onicor			1 com	- /		1 / 1/		

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

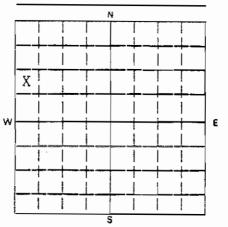
WASHINGTON, DC 20460

## WELL REWORK RECORD

NAME AND ADDRESS OF PERMITTEE IMC Kalium 1395 135th Avenue Hersey, MΙ 49639

NAME AND ADDRESS OF CONTRACTOR IMC Kalium 1395 135th Avenue Hersey, MI 49639

LOCATE WELL AND OUTLINE UNIT ON
SECTION PLAT — 640 ACRES



SURFACE LO	CATION DESCRIPTION of SW1/4 of	1/4 of Section 26 Township 17N Range 9W
ΜI	Osceola	MI-133-3G-A002
STATE	COUNTY	PERMIT NUMBER

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

Date Rework Completed 01/30/97

Surface 1274  $\frac{74}{1}$  ft. from (N/S) S Line of quarter section it. from (E/W) W ine of quarter section

WELL ACTIVITY ☐ Brine Disposal ☐ Enhanced Recovery ☐ Hydrocarbon Storage X Sol'n Mining Lease Name

Kalium Hersev

Total Depth Before Rework TYPE OF PERMIT 7880 □ Individual □ Area Total Depth After Rework Number of Wells 167880 Date Rework Commenced Well Number 01/14/97

1032

	WELL CASING RECORD — BEFORE REWORK										
Cas	sing	Can	nent	Perfor	ations	Acid or Fracture					
Size	Depth	. Sacks	Туре	From	То	Treatment Record					
13-3/8	814	650	Lite								
9-5/8	5267	2475	Class								
	7880	530	Class A	7880	7875	4 SH/FT					

WELL CASING RECORD — AFTER REWORK (Indicate Additions and Changes Only)

Transfer of the transfer of th									
Cas	Casing		nent	Perfor	ations	Acid or Fracture			
Size	Depth	Sacks	Тура	From	То	Treatment Record			
13-3/8	814	650	Lite						
9-5/8	5267	2475	Class A						
7	7880	530	Class H	7880	7871	4 SH/FT			
	Ī	Ì	i i						

DESCRIBE REWORK OPERATIONS IN DETAIL	WIRE LINE LOGS, LIST EACH TYPE		
USE ADDITIONAL SHEETS IF NECESSARY	Log Types	Logged Intervals	
Trip 4 1/2 inch casing out of hole.		-	
Run in hole with 5 3/4" mill. Trip			
mill. Run in hole with THL. Land			
at 7884.	·		

## CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32).

	D OFFICIAL TITLE (P.			SIGNATURE
Paul	McMillen	Minefield	Super	visor

Bul Myulls

DATE SIGNED 04/15/97 **≎**EPA

Х

W

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON DC 20460

## WELL REWORK RECORD

NAME AND AD	DRESS OF PI	EHMITTEE
IMC	Kaliu	m
1395	135th	Avenue
Herse	ey, MI	49639

NAME AND ADDRESS OF CONTRACTOR

Date Rework Completed 12-18-96

IMC Kalium 1395 135th Avenue <u>Hersev. MI 49639</u>

LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT - 640 ACRES

N

STATE COUNTY ΜI Osceola SURFACE LOCATION DESCRIPTION PERMIT NUMBER MI-133-3G-A002

NW 1/4 of SW1/4 of NW 1/4 of LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

1/4 of Section 26 Township 17N Range 9W

Surface 1274 Location \_ \_ft from (N/S)

and 650 ft. from (E/W)  $\overline{W}$ 

WELL ACTIVITY ☐ Brine Disposal ☐ Enhanced Recovery A Hydrocarbon Storage
XSol n Mining Lease Name

Total Depth Sefore Rework TYPE OF PERMIT 7880 Individual Total Depth After Rework 7880 serA 🗀 Number of Wells 16

Date Rework Commenced Kalium Hersey 12-9-96

Well Number 1032

WELL CASING RECORD \_\_ REFORE REWORK

	WELL CAGING RECORD - BEFORE REWORK										
Cas	ung	C	Cement		Ofations	Acid or Fracture					
Size	Depth	Sacks	. Sacks Type		To	Treatment Record					
13-3/8	814	650	Lite	į		100 101 101 101 101 101 101 101 101 101					
9-5/8	5267	2475	Class A								
7	78.8.0	530	Class H	7880	7875	4 SH/FT					
						Marie and Marie Assert Community and the second of the sec					
						AASAN (GERAMBERT)					
	, , , , , , , , , , , , , , , , , , , ,					Address - Co. Address - C. Allers - C. All					

WELL CASING RECORD — AFTER REWORK (Indicate Additions and Changes Only)

Cas	ung	Car	กอกเ	Perio	rations	Acid or Fracture
Size	Depth	Sacks Type		<u>คิเดส</u>	To	Treatment Record
13-3/8	814	650	Lite			
9-5/8	5267	2475	Class A			
7	7880	530	Class H	7880	7871	4 SH/FT
				_		

Trip DESCRIBE REWORK OPERATIONS IN DETAIL	WIRE LINE LOGS, LIST EACH TYPE					
USE ADDITIONAL SHEETS IF NECESSARY	Log Types	Logged Intervals				
Trip Laying, Perforate from	PFC	7850-6550				
7871-7875. Run in hole w/ 4 1/2	Perforate	7871 - 7875				
casing. PFC Injection Point =	-					
7871'.						

## CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisc ... ment... (Ref. 40 CFR 144.32)...

NAME	ANI	)	Of	F	IC	A	. 1	ITTLE (Please type or print)
							•	
_						_	_	

Paul McMillen Minefield Supervisor fal nome

DATE SIGNED 12/20/96 SEPA

UNITED STATES ENVIRONMENTAL PROTECTI. WASHINGTON, DC 20460

AUG 2 9 1996 🚁 -

# **WELL REWORK RECORD**

4E AND ADDRESS OF PERMITTEE IMC KALIUM 1395 135th Avenue Hersey, MI 49639

LOCATE WELL AND QUITLINE UNIT ON

NAME AND ADDRESS OF CONTRACTOR IMC KALIUM 1395 135th Avenue 49639 Hersey, MI

SECTION PLAT - 640 ACRES

PERMIT NUMBER STATE COUNTY MI-133-3G-A002 Osceola MΙ SURFACE LOCATION OSSCRIPTION MOF NW 26 TOWNSHIP 17N RANGE 9W WOF SW **4 Section** LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT Surface 1274 Location 650 W Line of querrer secures Total Capth Balara Rework TYPE OF PERMIT WELLACTIVITY 🖸 individual 7880 🖸 Brine Oisposal asra E C Enhanced Recovery Total Depth After Rework Number of Wells. C Hydrocarton Slorage 7880 XSol'n Mining Date Rework Commenced Well Number Leuse Hame 7-15-96 1032 Kalium Hersey 7-17-96

	WELL CASING RECORD — BEFORE REWORK										
	Cāsing		i wani	Pori	المرازية	Anid of França					
Size	Been	l Same	Type	- Fram	<b>1</b> %	Theorem fleet					
13-3/8	814	650	Lite		1						
9- <u>5/8</u>	5267	24/5	Class A	1							
[ 7	7880	1 530	Class H	7880	7877						
	1	Ť	1	and the second of the second o							
					1						
			, ,								

	WELL CASING RECORD — AFTER REWORK Undisons Additions and Countries Onth										
<u> </u>	ड <b>ल</b> व्		·		*******	And or France					
Size	Depth	3	i Type	From	īe	Tresument Kecard					
13-3/8	814	650	Lite								
9-5/8	5267	2475	Class A								
7	7880	530	Class H	7880	7875	4sh/ft					
				tional and and and	1						
		anni estambles ant anna missell									
						•					

DESCRIBE REWORK OPERATIONS IN DETAIL	WHE UNELOGS, UST EACH TYPE					
USE ADDITIONAL SHEETS IF NECESSARY	Log Types	Logged Intervals				
Trip 2-7/8 tubing and \$4-1/2 liner	Perforate	7877-7875				
rerun tubing. Injection point= 7874	ft					
		· · · · · · · · · · · · · · · · · · ·				

## CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there ere significant panalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32).

7-20-96

UNITED STATES ENVIRONMENTAL PROTECTION

WASHINGTON, DC 20460

# WELL REWORK RECORD

4E AND ACCRESS OF PERMITTEE Kalium Chemicals, Ltd. 1395 135th Avenue Hersey, MI 49639

NAME AND ACCRESS OF CONTRACTOR Kalium Chemicals, Ltd. 1395 135th Avenue Hersey, MI 49639

LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT - 640 ACRES

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PERMIT NUMBER STATE COUNTY MI-133-3G-A002 Osceola ΜI SURFACE LOCATION DESCRIPTION range<sup>9W</sup> TOWNSHIJ 7N MOF NW W SECTION 26 MOF SW LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF CLUARTER SECTION AND CREEKING UNIT Surface 1274 from (N/S) S Line of general section 650 W Trom (E/W) Line of austrar teamer Total Depth Selore Rework TYPE OF PERMIT WELLACTIVITY 7880 ☐ Individual 🖸 Brins Giscossi S Area ☐ Enhanced Recovery Total Depth After Reserts Number of Wells 12 ☐ Hydrocarbon Storage 7880 XSol'n Mining Date Rewark Commenced Well Number <u>i esce Name</u> 4-3-96 1032 Kalium Hersey Date Revent Completed

4-4-96

Well Casing Record — Before Rework									
c.	sing	Carren		Perior		Asid or Fraction			
Size	<del>Deam</del>	5443	i 1 <del>150</del>	<del>Fron</del>	_ <b>1</b> 3	गिरक्षण <del>ाकार विकास</del>			
13-3/8	814	650	μite ,						
9- <u>5/8</u>	15267	2475	CLASS A						
7	7880	330	Class H						
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Vietnam - Pilling	İ		1 1						

WELL CASING RECORD — AFTER REWORK (Indicate Additions and Changes Only)									
<u></u>	une	1	amen !	Parice		Acad or fracture			
Size	Osoin .	Şeezz	Type	<del>?+</del>	Î Î	Treatment Record			
13-3/8	814	020	Lite						
9-5/8	5267	2475	Class A						
7	7880	530	Class H	7880	7877	4 SH/FT			
			1						
		of of the order to be the second to the second	1						
			1	1		•			

DESCRIBE REWORK OPERATIONS IN DETAIL	WIFE LINE LOGS. LIST EACH TYPE					
USE ADDITIONAL SHEETS IF NECESSARY	LOG Types	Looged Interveis				
Trip 2-7/8 tubing and 4-1/2 liner	Perforate	7880-7877				
standing. Perforate /880 to /8//.						
Rerun tubing. Injection point-						
7877 feet.	1					

## CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate. and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment (Ref. 40 CFR 144.32).

DATE SIGNED 4-5-96

TYPE OF WELL (after completion) STATE OF MICHIGAN
DEPARTMENT OF NATURAL HESOURCES
GEOLOGICAL SURVEY DIVISION
P.O. BOX 30028. LANSING. MICHIGAN 48909 PERMIT NO DEEPENING PERMIT NO Solution Mining M397 Potash FIELD/FACILITY NAME RECORD OF WELL DRILLING OR DEEPENING Hersey Potash USE APPROPRIATE BLOCKS, FOR ITEMS NOT LISTED SUBMIT ATTACHMENTS. WELL NAME & NUMBER REQUIRED BY AUTHORITY OF: ACT 61 P.A. 1939. AS AMENDED (Submit 2 copies within 30 days of completion) ACT 315, P.A. 1969, AS AMENDED (Submit 2 copies within 60 days of completion.) 1032 Kalium Hersey # SURFACE LOCATION NON-SUBMISSION AND/OR FALSIFICATION OF THIS INFORMATION MAY RESULT IN FINES AND/OR IMPRISONMENT. 9W 14 Section 26 T 17N R NW4 of SW 4 of NW NAME AND ADDRESS OF OWNER TOWNSHIP COUNTY Osceola Hersey Kalium Chemicals, Ltd. FOOTAGES: NORTH/SOUTH EAST/WEST 1395 135th Avenue S Line and 660 t. from W 1274 Ft. from Line of 1/4 Sec. Hersey, MI 49639 NAME AND ADDRESS OF DRILLING CONTRACTOR
McLachlan Drilling Company SUBSURFACE LOCATION (if directionally drilled) 14 Section 26 T 17N R 9W 1/4 of NW SW 14 of SE P. O. Box 548 TOWNSHIP COUNTY Osceola MI49631-0548 Hersey Evart, DATE DRILLING BEGAN DATE DRILL COMPLETED EAST/WEST POOTAGES: NORTH/SOUTH DATE WELL COMPLETED Line and 98 Pt. from . E 60 Ft. from S Line of 1/4 Sec. Incomplete 10/17/94 11/15/94 FEET DRILLED - ROTARY TOOLS FEET DRILLED - CABLE TOOLS TOTAL DEPTH OF WELL FORMATION AT TD PROD FORMATION(S) Log 8018 Driller 80⊥8 From Surface, 8018 From NA Tο A-1 Salt ΝÄ INJECTED FORMATION SOLUTION FORMATION DATE OF FIRST INJECTION **ELEVATIONS** 1161 g. R.F. 1159 - R. A.T K.B. ft. Grd1148.2% . CASING, CASING LINERS AND CEMENTING, OPERATING STRINGS PERFORATIONS SIZE WHERE SET FT. PULLED NUMBER OPEN CEMENT 30" DATE HOLES INTERVAL PERFORATED 80 Ü Driven YES NO 13-3/8" 814 0 650 sks 0 9-5/81 5267 2475 sks 7" 7958 530 sks 0 NONE GROSS PAY INTERVALS ALL OTHER OIL AND GAS SHOWS OBSERVED OR LOGGED

SHOOT TAT INTENTALO				ASS OTHER.		- 0110110	000=,(	· ·	,,, <u>Lo</u>			
FORMATION	OIL OR GAS	FROM	TO	OIL WHERE OBSERVED (X)								
ΝΛ				FORMATION	OF GAS	DEPTH	Sam- ples	Odor	Pits	Mud Line	Gas Log.	Fill Up
				NA								
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### STIMULATION BY ACID OR FRACTURING WATER FILL UP (F.U.) OR LOST CIRCULATION (L.C.) (X) INTERVAL TREATED F.U. | L.C. | DEPTH DATE FORMATION AMOUNT MATERIALS AND AMOUNT USED NONE NONE

MEC	HAN	ICAL LOGS, LIST EACH	TYPE RUN	DEPTH (	ORRECTION	DEVIATIO	N SURVEY	PLU	JGGEL	BACK
BRAND	(X)	LOG TYPES	LOGGED INTERVALS	DEPTH	CORRECTION	RUN AT	DEGREES	YES	NO	DEPTH
Schlumberger	X	GR-Sonic	8015-5262			2600	0.3			
Birdwell						5650	32	_		
9 MI Wire	li	ne Gamma-CCL	7917-7440			7392	6.5			
F .						7960	2.3			

### PRODUCTION TEST DATA OIL — Bbls/day GRAVITY - "API GAS - MCF/day WATER - Bbis/day H<sub>2</sub>S - Grains/100 cu ft COND Bbls/day BH.P AND DEPTH 0 0 NA NA 0 NA NA

I AM RESPONSIBLE FO	OR THIS REPORT. THE INFORMATI	ON IS COMPLETE AND	CORRECT	1
DATE	NAME AND TITLE (PRINT)	Minefield	SIGNATURE	1
3/28/95	Lawrence E. Bean,	Supervisor	James (,	Idlan

## FORMATION RECORD

(ATTACH ADDITIONAL SHEETS IF NECESSARY)

NOTE	ELEVATION USED:	61.8	SEOLO	OGIST NAME:	TOPS TAKEN FROM:	LOG		SAMPLE LOG   ELECTRIC LOG
Or	FROM	то	T	FORMATION (TYPE, COLOR, HARDNESS)				FORMATION
O	NOTE: IF WELL	DIRECTION	VALLY					
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1842   Sand   Sunbury Shale								
1842   2580   3028   Sunbury Shale   Sunbury Shale   Antrim Shale   Traverse Formation   Traverse Lime   Bell Shale   Dundee   Detroit River Anhydrite   Dundee   Detroit River Salt   Massive Anhydrite   Amheartsburg   Sylvania   Bois Blanc   Bass Island   Salina G Unit F Salt   E Unit   E Unit   E Unit   E Unit   E Unit   E Unit   E Unit   E Unit   E Unit   A-2 Carbonate   A-1 Evaporate   A-1 Evaporate   A-1 Evaporate   DDC Single Shot Surveys 100-5600 and   5649 - 7960   Single Shot Surveys Use ONLY   REVIEWED BY.	1570	1	,		li	İ		
3028   3238   Antrim Shale   Traverse Formation   Traverse Formation   Traverse Formation   Traverse Formation   Traverse Lime   Bell Shale   Dundee   Detroit River Anhydrite   Detroit River Salt   Massive Anhydrite   Amheartsburg   Sylvania   Solia	1710				ļį.			
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Massive Anhydrite								
Sample					.			
Salt								
Selection   Solid	-				IF WE	LL WA	S COR	ED, ATTACH CORE DESCRIPTION
Bass   Island   Salina   Gunit   F Salt   E Unit   Salina   Gunit   F Salt   E Unit   D Salt   Garden   Garde							DRILL	STEM TEST DATA
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Kalium Chemicals (well#1032

Kalium Chemicals P.O. Box 290, 11461 South 135th Avenue Hersey, Michigan 49639 Telephone: (616) 832-3755 Fax: (616) 832-3349

November 1, 1994

Michigan Department of Natural Resources Proration and Technical Evaluation 735 E. Hazel St. Lansing, MI 48912

ATTN: Mr. Thomas Godbold

Dear Sir:

Kalium Chemicals has set and cemented 9 5/8 inch casing in Kalium Hersey #1032. I am faxing the daily drilling report. It may not fax well, so I will repeat the cementing information.

- Ran 140 joints of used 53.5# and 47# 9 5/8 inch casing totaling 5,276 feet
- Shoe at 5,265 feet
- Float Collar at 5,231
- Centralizers at 5,191, 5,152, and 5,117 feet
- DV Tool at 3,052 feet

Cemented first stage with 950 sks. of Halliburton Lite and 250 sks. Class A with 3% CaCl. Displaced with 368 bbl. of pit fluid. Bumped plug at 06:00. After opening the DV tool, circulated 6 bbl. of cement back to surface from the first stage.

Started second stage at 09:00 with 1,125 sks. of Halliburton Lite and 150 sks. Class A with 3% CaCl. Displaced with 216 bbl. of pit fluid. Circulated 130 bbl. of cement back to surface. Bumped plug at 10:45.

We plan to drill out at 04:00 tomorrow morning. Please call me with any questions.

Respectfully submitted,

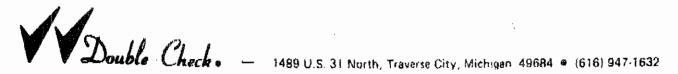
Larry Bean

Minefield Supervisor Kalium Chemicals

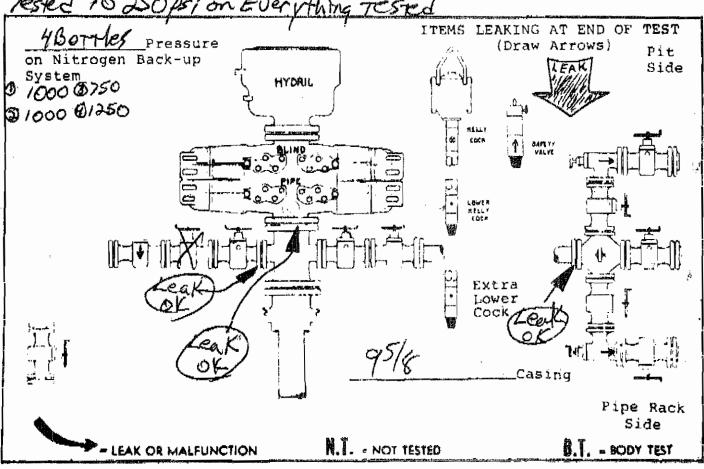
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Testing Specialists Since 1959	
B.O.P. TEST	Date //- 6-94
oil company Kalium chemical	
Location Kelium Hersey #1032	Rig No.
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HYDRIL TEST TO	POUNDS FOR NINS.
BLIND RAMS TEST TO	POUNDS FOR OK MINS.
PIPE RAMS TEST TO	POUNDS FOR 20 MINS.
KELLY COCK UPPER TEST TO	POUNDS FOR MINS.
KELLY COCK LOWER TEST TO	POUNDS FORMINS.
SAFETY VALVE TEST TO	POUNDS FOR MINS.
CHOKE LINE TEST TO	_ POUNDS FOR 20MINS.
CHOKE MANIFOLD TEST TO 3000	POUNDS FOR 20 MINS.
CASING TEST TO FT.	POUNDS FORMINS.
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(9) /And (9)750	
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B.O.P. CLOSING DATA

B.O.P.'s CLOSED using pump and accumulators (indicate which).

Closing Pressure Hydril /500 Rams 3000 Blinds COO

\_\_\_\_\_\_Accumulator Bottles indicated \_\_\_\_\_ at end of Test.

All components of closing system working O.K. at end of test with no delays excepting \_\_\_\_\_\_

signed Ken Complow Teste

Lime-

FPH

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Puster

DAILY DRILLING REPORT

7-94 ;	8:25	;	Kalium Chemicals→		;# 5
ROKOS	CONS	UL	TING INC.	DAY: _	FRIDAY
DAILY	DRILLI	NG	REPORT	DATE	11-4-94

OPER	ATOR:	Alium C	he mich	/					
WELL	NAME: L	1A/IAM	HERSEY	1032		RIG		NOC A	<u>'                                    </u>
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Billy HICKS

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Nation Offinited 24 DAY: MON ROKOS CONSULTING INC. DATE: 10-31-94 DAILY DRILLING REPORT OPERATOR: KAlium CHEMICAL RIG: MOL #4 WELL NAME: Kalium Heaven 1032 STATUS: \_ Depth Footage Cut / 33/8 .. DAYS: Report Day No (T.O.C. = S ~ 1 1 1 LAST CSG: \_ Drill Bate mlott MUD: \_\_\_\_\_\_\_\_\_Gradient-pauft LCM-lb/bbi Solida % Ci-mg/l \vi-ppg DRLS SER RIS DRLA 1840 8" DE. TOOM LAUSDAN BREAKDOWN Chaire to Locket 1855. STRAP HOURLY Formation Tops AMHENSTBUNG 5/32 Û DEVIATION V Sec M.D. Oriti Direction T.V.Ď NorS E or W STATION Ş MUD 'I Solid Cont. WATER BRINE | FRESH BIT RUNS: Seri (CQ 5730) (MA6885) MUD ADDITIONS Aun Number HH 5 RR Kwik Gal-Size-Make F.W. Gal-Sx Type Sait Gel-Şx Te: --28 28 Nozzies 1/32" Sx Starch Depth Out Paper-5 Footage \$x Mudseal-Hours Şx Kwikseal-Condition T/B/Gauge Soda Ash-Bit Wt Caustic-Şx RPM gal Tool 700 Bleach # P\$I-GPM FPH Lime-FOREMAN \_\_\_

**FOREMAN** 

DAY: SAT ROKOS CONSULTING INC. DATE: 10-29-94 DAILY DRILLING REPORT OPERATOR: KALIUM CLAS NO CAL MOC #4 WELL NAME: Kallum RIG: STATUS: } Depth Footage Cut 814 (T.O.C. = 54RE) LAST CSG: \_ DAYS: \_ Report Day No. Oriil Rate min/ft NC 120,000 LCM-Ib/bbl Wt-ppg Via-860 DRLS 118121 552 Ris 4 56 AET 17815 5 was ware 4663 2. SINE HOURLY BREAKDOWN 17610 Formation Toos DEVIATION V Sec MO. Orlit Direction T.V.D N or S E or W 4608 4484 53,77 495 410 RF = RT . COCAD KB = MUD 1 | Solid | Cont SIT RUNS: Ser# (605730) MUD ADDITIONS Run Number (RB) Kwik Gel-Sx Size-Make F.W. Gal-Sx Type San Gel-Nozzies 1/32" Starch Depth Out Paper-1452 Footage Mudsea!-Sx 80 Kwikseal Sx Condition T/B/Gauge Soda Ash-50 Bit Wt. Caustic-Sxi RPM Horini 40 ga 1800 700 **PSI-GPM** Hubbard Bleach-Pusher FPH Lime FOREMAN BILLY HICKS

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na:ium Unemicais→ ;# Z ROKOS CONSULTING INC. DATE: 10/28/94 DAILY DRILLING REPORT OPERATOR: KALLYM CLEMICAL WELL NAME: Kolinam HERSEN 1032 MDC RIG: STATUS: Footage Cut (T.O.C. = 54R 3-4 LAST CSG: . DAYS: . Report Day No. Orll Rate min/it 9.6 11 <u>C.</u> 499 ヹ゚゙゙゙゙゙゙゙゚゙゙゙ MUD: Gradient-psi/ft W.L.-cc LCM-Ib/bbl Solids % WI-ppg Vis-sec Cl-mg/i DRLS RIE SEE DRLS454008d BREAKDOWN DPLO SURUEY U Joint Formation Tops DET RIVERO DET ROUSE SAIT DIEWIA I KOW SURVEYS M.D. Drift T.V.D V. Sec N or S E or W Direction 4234 aaM318 381 \$ **3**9. 4140 496 ELEVATIONS 364 4312 567 re = SS AT » KB = COCHI MUD Mat'l | Solid Cont. BIT RUNS: Ser# (CO.5730) MUD ADDITIONS WATER BRINE | FRESH Run Number RR Kwik Gel-COST Rte 121/1 Sx Size-Make F.W. Gel-⊘ 200 This Date P62A Salt Gel-Sx Type Total 28 28 Nozzies 1/32" Starch 9185 ۵ ٥ Cost ٤× Depth Out Paper-Sx Footage Mudacal-Well Cost 8220 This Date Hours Kwikseal-Sx Condition T/B/Gauge Soda Ash-SX Total Bit Wt. Sx Well Cost Caustic-60 RPM Floc.ġŧ Tool Ed GILMORE 700 700 PSI-GPM Blesch-Pusher 3 FPH Lime-Billy HICKS FOREMAN

VELL NAME:	QPER,	ATOR: <u>Ka</u>	lum Ch	EMICA	,	ALT DAG	בנוחם אפר	ONI		DATE:	191474
Capit	WELL	NAME: K				1032		RIG:		DC. #4	
AST CSG:   13							STATUS	3:	DRL	3 W/	Building Ass
No.   Part   P	<b>_</b>							1536		ريا ھ ا	
A	DAYS:		<u> </u>			LAST	ÇSG:	73 78	`` @		(1.0.C. = 34R/F)
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Size-Make   12/14 Rtd   Salt Gel-Sx   Starch   Sx   Cost   Syst   14000   Cost   Starch   Sx   Cost   Starch   Sx   Cost   Starch   Sx   Cost   Starch   Sx   Cost   Starch   Sx   Cost   Starch   Sx   Cost   Starch   Sx   Cost   Sx   Cost   Sx   Cost   Sx   Cost   Sx   Cost   Sx   Cost   Sx   Cost   Sx   Cost   Sx   Cost   Sx   Cost   Sx   Cost   Sx   Cost   Sx   Cost   Sx   Cost   Sx   Cost   Sx   Cost   Sx   Cost   Sx   Cost   Sx   Cost   Cost   Sx   Cost   Sx   Cost   Cost   Sx   Cost   Cos	물 까 }-			A.D.	Ortts	Dir	ection '	T.V.D	V Sec	N or S	
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BIT RUNS: Ser# (CQ 5730) ( ) ( ) MUD ADDITIONS   Mat   Solid Cont.	چا چ <u>ې</u>	L a	- <u>F</u>	<u> </u>			ahaladan a		***************************************	-	
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Depth Out         DB         Paper-         Sx           Footage         794         Mudgeal-         Sx         Well Cost         86.20           Hours         40/2         Kwikseal-         Sx         This Date           Condition         Soda Ash-         Sx         Total           If Wt.         60         Caustic-         Sx         Well Cost         190,680           RPM         60         Floc         gal         Total         Pusher         Ecl C / mr CRE           PSI-GPM         19.6         Elme-         Sx         Pusher         Pusher								***************************************	Total		
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					DAILY	DRIL	LING RE	PORT				DATE: _	10-2	4-94
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10-24-94 10	:25 FRUM K	ROKO	S CONSULT		616 832 ,		SUN
•			LY DRILLING F	<i>7</i> 4		DATE	10-23-94
OPERATOR: _	KALIUM CI	Henical					
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DAVS:	4	Foolage Cut	LACT CCC	133/	" 6	214 C	TOC = 500 ( )
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1111			Lime-	Sxi		-74	2

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FROM KALIUM HERSEY MINEFIEL 616 832 2640 ΙD ROKOS CONSULTING INC. DATE: 10-12-90 DAILY DRILLING REPORT OPERATOR: HALLY AND CHE NILL AL RIG: MDC. #4 WELL NAME: KALIMA HEREIMS 193 STATUS: \_\_ DRIVING Depth Footage Cut (T.O.C. = 54x) \_\_ LAST CSG: \_\_ DAYS: Report Day No Drill Rate min/ft .462 MUD: Gradient-psi/ft LCM-ID/DDI Wt-ppg Vis-sec Cl-mc/l Solids % Ric KEXXII I RIN BREAKDOWN 10% HOURLY Formation Tops STATIONS DEVIATION SURIVEYS M.D. 0.79 Direction T.V.D V. Sec E or W STATION GL = RF = LAST RT -KB . SOOR BIT RUNS: Ser# MUD ADDITIONS Run Number RB NE. Kwik Gel-\$x COST Size-Make \$x F.W. Gel-This Date Type 70 sx Salt Gel-Total Nozzles 1/32" Sx Starch Cost Depth Out Paper-S× 1 : : Footage Mudseal-Sx Well Cost This Date Hours Sx Kwikseal Condition T/B/Gauge Soda Ash-Total 50 25 Bit Wt. Caustic-Sx Well Cost RPM AN Floc. gal Tool 1300 500 PSI-GPM Sleach-Pusher FPH Lime-

10-24-94 10:24

10-2	4-34 TO.	23 FROM	VULI	RO RO	KOS CO	NSULTI	NG INC.		32 264	DAY:	FRIDAY
						ILLING RE				DATE	10-21-94
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	NAME:				10.32	2	RIG	·	100.	7 4	
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## Wilcox Associates Inc.



PRODUCT 240 NEBS Inc. Groton, Mass. 01471

Engineering Surveying and Environmental Sciences

P.O. Box 580 7711 South US 131 CADILLAC, MI 49601 616 775-7755

# LETTER OF TRANSMITTAL

	Sciences	616 775-7755	10/31/94
			Super visor of Wells
TO C.e		D1-1-1-	RE:
- 00	eological Survey I chigan Dept. of i	Division Natural Resources	Well Elevations - Kalium Chemicals
_Pr	oration Unit		Kalium Hersey #1032
	O. Box 30256 Insing, MI 48909		Permit #M-395
	ш <u>ынд, мі 4000</u>		Section 26, T17N, R9W
			Hersey Township, Osceola County
			Michigan
WE ARE	SENDING YOU   At	itached 🗆 Under separate co	ver viathe following items:
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Ab	ove elevations ar	<u>e U.S.G.S. datum.</u>	
			<u> </u>
COPY TO	Larry Bean - K	(alium Chemical	
<i>(</i> 7).	e-Consumer Content • 10% Post-Con		SIGNED:
DECREATE C			noted, kindly notity us at once.

NATURAL RESOURCES COMMISSION

> JERRY C. BARTNIK LARRY DEVUYST PAUL EISELE JAMES HILL DAVID HOLLI JOEY M SPANO JORDAN B TATTER



JOHN ENGLER, Governor

## **DEPARTMENT OF NATURAL RESOURCES**

Stevens T. Mason Building, P.O. Box 30256 Lansing, MI 48909

ROLAND HARMES, Director

GEOLOGICAL SURVEY DIVISION
P O Box 30256, Lansing, MI 48909-7756

October 21, 1994

Mr. Lawrence E. Bean Kalium Chemicals Ltd. 1395 135th Avenue Hersey, MI 49639

Dear Mr. Bean:

Re: Kalium Hersey #1032, Osceola County

We have discovered a bookkeeping error which resulted in this permit being assigned the wrong sequential permit number. The number indicated on the permit <u>M395</u> is <u>incorrect</u>. The correct permit number should be <u>M397</u>. Please make this change to your copies and file, and use it on any records filed or future correspondence.

I sincerely apologize for this error and any inconvenience it may cause.

Sincerely,

William R. Lee Permit Coordinator

Permits and Bonding Unit Geological Survey Division

illiam R. Lac

 $(517)^{-}334-6974$ 

cc: Hal Fitch, DNR

File



STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES GEOLOGICAL SURVEY DIVISION BOX 30028 LANSING MICHIGAN 48909

## PERMIT TO

□ OPERATE DRILL DEEPEN REWORK GRANTED UNDER PROVISIONS OF

Act 61 P.A. 1939, as amended Act 315, P.A. 1969 as amended (MCL 319.1 to 319.27) (M.C.L. 319 211 to 319.236)

Violation of and/or non-compliance with the provisions of the acts and conditions of permit may result in penalties. This permit includes as requirements all the operations and methods proposed by the applicant, unless rejected or altered by the DNR, and along with the attached stipulations are incorporated in its entirety by

WELL NAME WELL NO

PERMIT M 397	ISSUEO	TYPE OF	WE	LL		
	9/8/94	SOLU	ΝI	Q.	MINING	
CANCEL AND TRANSFER	ISSUED	FORMAT	ION			
		A-1	EV	APC	RATE	
DEEPENING PERMIT		DEPTH				
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PERMIT EXPIRES		KIND OF	TO	DLS		
	3/8/95	RC	T.	ВХ		
ISSUED TO						

HALTIM CHRATCALS, LAD. 1395 135th Avenue HERSEY, HI 49639

KALTIM HERSKY \$1032

LOCATION AND FOOTAGES:

SHL: MM/4 SW2, NW2, Sec. 26, T17N, R9W, Hersey Township, Osceola County. 1274 feet from South and 660 feet from West Line of quarter section.

BHL: Set, Set, Not, Sec. 26, T17W, R9W, Hersey Township, Osceola County. 50 feet from South and 969 feet from East Line of quarter section.

			SING AND SEALING REQUIREM	ENTS	CEME	uT
O.D. SIZE	<u>WT./FT.</u>	CASING GRADE	CONDITION	DEPTH	SACKS	W.O.C. (HRS.)
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9 5/8=	404	K-55	NEW/USED	5250°	18(1)	15
732	234			<b>EXX</b> )*	300	15

- 8 Surface casing shall be set at least 100' into competent bedrock and below the deepest freshwater agaifer with coment circulated to surface.
- No earthem reserve pit is to be dug Steel tanks are to be used to contain drilling fluids axi cuttims.
- Solids and cuttings may be tempororily stored in the asphalt lined improving area. All outtings shall be removed within 30 days after reaching total depth and hauled to a disposal site approved by Cadillac District Office, Hal Fitch, (616) 775-9727.
- 7" production casing shall be comented such that an adequate sheath is provided through and above the A2 Carbonate. The annulus between the 7" and 9 5/8" casing strings shall be continuously monitored and recorded.
- 5. Contact Thomas Godbold at the Lansing Office, (517) 334-6945, 24 hours prior to commercing drilling operations.
- This well shall be drilled and operated in compliance with the Hydrogen Sulfide Rules (R 299.1911 to R 299.1999). NOTIFY LOCAL EMERGENCY PREPAREDNESS COORDINATOR OF WELL LOCATION, H2S POTENTIAL, and CONTINGENCY PLAN AVAILABILITY prior to soving in rig.
- 7. Due to proximity of existing wells, protection shall be provided for any wellnead located within the drilling area to prevent any damage during drilling and completion activities.

OFFICE TO BE NOTIFIED BEFORE DRILLING/DEEPENING STARTS

CADILLAC DISTRICT OFFICE (616) 775-9727

WILLIAM R. LEE

PAGE 1 of PAGE(S)

#### THIS PERMIT IS SUBJECT TO THESE GENERAL CONDITIONS

- 1 Drilling operations shall not start until the drill site preparation requirements are completed.
- Initiation of any work on the permitted project confirms the permittee's acceptance and agreement to comply with all the terms and conditions of this permit and the rules, orders and requirements of the Supervisor of Wells/Mineral Wells.
- The permittee is required to give notice to public utilities in accordance with Act 53, PA 1974 (M.C.L. 460.701 to 460.718)
- Any changes from what is stated in the permit application and permit shall be approved by the Supervisor of Wells/Mineral Wells
- 5. This permit is valid only for the permittee of issue and any change of ownership shall be accompanied by a request to the Supervisor of Wells/Mineral Wells to transfer the permit from the current owner to the new owner.
- 6 NOTICE AND REQUIREMENTS FOR SOURCES OF WATER AND WATER WELLS USED IN CONJUNCTION WITH OIL AND GAS OR MINERAL WELL DRILLING. AND OPERATIONS" December 1, 1984 is made part of and a condition of this permit
- 7 During well completion and testing procedures all fluids shall be contained in tanks and transported to off site disposal facilities
- 8 The Michigan Air Pollution Control Commission rules require that a person shall not install nor after sour gas or oil well production equipment and flare unless a permit to install has been approved by the Commission. An operator is allowed to drill and test a sour well prior to obtaining the necessary permit to install from the Commission, but is not allowed full production of such wells before issuance of the necessary air use permits.
- 3 This permit does not convey property rights in either rest estate or material or does it authorize any injury to private property or invasion of private or public rights or does it waive the necessity of seeking federal and local permits or complying with other state statutes.
- 10. If a Hydrogen Sulphide contingency plan is required, a copy of PART it of the plan shall be posted in the primary briefing area.
- 11 All trash and garbage shall be removed from the drill site at the completion of drilling.
- 12 Blowout preventers, accumulators, and pumps shall be certified as operable under the product manufacturer's minimum operational specifications. This certification shall include proper operation of the closing unit valving pressure gauges, and manufacturer's recommended accumulatory fluids. Certification may be obtained through those companies presently used to test the blowout preventers stack and casing. Certification shall be required annually and shall be posted on the rig floor.
- 13. In addition to the primary closing system, including an accumulator system, the blowout preventers shall have a secondary system. A combination of any two of the following secondary closing systems will be acceptable: Electric-operated pump; Air-operated pump; Hand-operated pump or nitrogen. Extensions with hand wheels are not mandatory.
- 14 Blowout preventer rams shall be of proper size for the drill pipe being used or production casing being run in the well. Variable type rams of the proper size range will be acceptable.
- 15 The gas buster and flare system shall be in place and operable prior to drilling into a reservoir known or believed to contain Hydrogen Sulphide in excess of 500 ppm with the intention to complete in end/or test that reservoir
- 16. A trip tank, or any accurate fluid monitoring system, as well as a gas buster and flare system where justified, shall be in place when penetrating the A2 Carbonate formation. Changes may be granted by the Department of Natural Resources District Geologist

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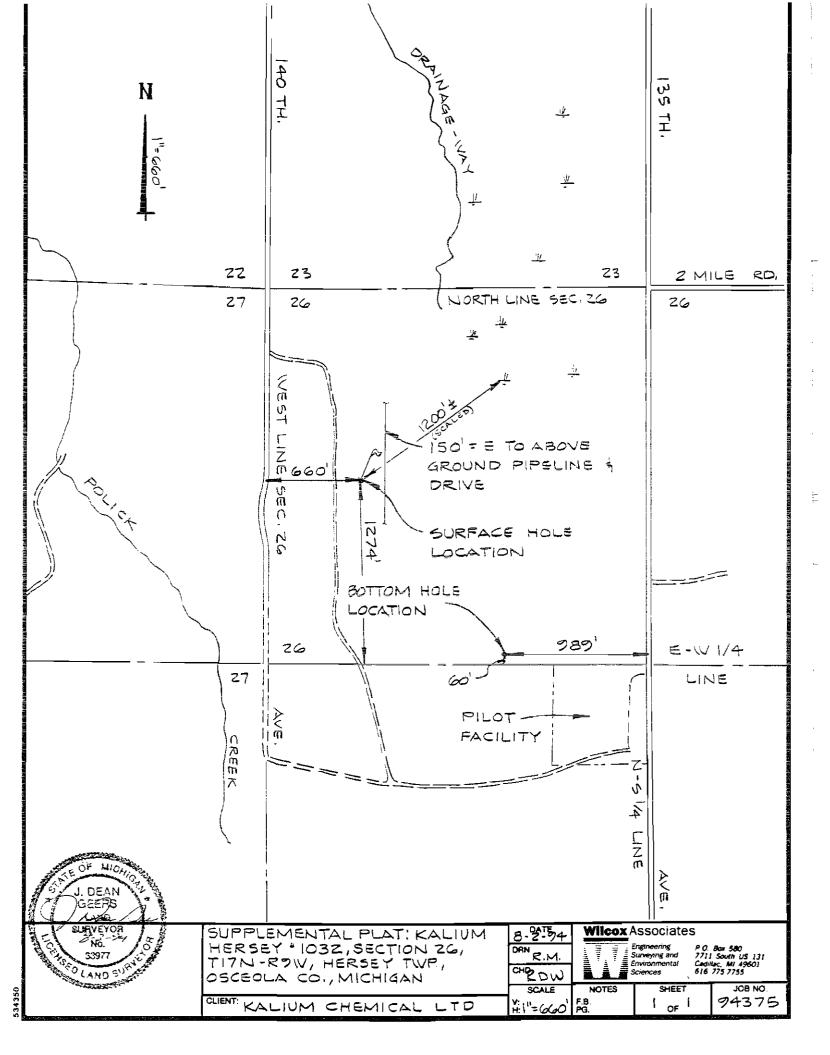
### STATE OF MICHIGAN

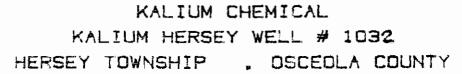
## SURVEY RECORD OF WELL LOCATION

94375

94375				
APPLICANT	WELL NAME AND NUMBER			
Kalium Chemicals, Ltd.	Kalium Hersey #1032			
SURFACE LOCATION	TOWNSHIP COUNTY			
NW % of SW % of NW % of Section 26 T17N R 9W	Hersey		Osceola	,
BOTTOM HOLE LOCATION	<u> </u>	-	COUNTY	0.00
SW SE NW 36 - 17N - 9W	Horsey		Osceola	
SW % of SE % of NW % of Section 26 T 17N 89W Instructions: Outline drilling unit and spot well location on Plat show				
into an East half and a West half OR a North half and a South half (whichever applies). Outline the Unit and locate the well in two				
directions from NEAREST quarter section and unit lines (For Act 61, P.A., 1939, as amended).				
2. Location of well in two directions from NEAREST quarter section	1 PLAT BELOW REPRESENTS ONE FULL SECTION			
and unit lines is (For Act 61 P.A. 1939, as amended):	(1 MILE SQUARE) N			
Surface Location:			- Surface	:
1274 ft. from South line of Quarter Section	135		Hole	
	354	2	Location	
660 ft. from West line of Quarter Section	~/	256		
iseaniseasi		671		!
Bottom Hole Location:			<del></del>	
60 ft. from South line of Quarter Section	660' ]	1995'		
(north-south)	12	į		
989 ft. from East line of Quarter Section	274		Bottom	:
			Hole	Į.
Bottom Hole Will Be:	1675'	989'	Location	<u> </u>
$N/A$ ft. from $\frac{1}{(\text{hortn-south})}$ line of unit/property (Act 315) lease		60'	]	
		-50		
ft. from [east-west] line of unit/property (Act 315) lease				
(east-west)		SECTION	26	
3a Describe wellsite marker. Show or describe access route if it is not				
readily accessible.		<u></u>		
Wellsite is marked with a painted wood stake Site can be reached from the Southeast, off		!	ĺ	i
of 135th Avenue, along an existing access				
trail to the site.		<u> </u>	[	
			· [	
3b Zoning 🗀 Residential 🔀 Other: <u>None in effect</u>			1	
3c. Effective date:	(Scale of Plat - 1 inch equals 1320 ft.)			
ON SEPARATE PLAT OR PLOT PLAN, LOCATE, IDENTIFY AND SHOW DISTANCES TO:				
A All roads, power lines, residences, farm buildings, and other structures within 300 feet of the stake				
A All roads, power lines, residences, farm outldings, and other s	structures within 3	OO leet of the st	and	
B All lakes streams swamps drainage-ways or any other surface water features within 1320 feet of the stake				
5 In an ENVIRONMENTAL IMPACT ASSESSMENT describe all structures and surface features shown detailing plans for hazards prevention				
and erosion (See instructions and guidelines for preparation of an environmental impact assessment).				
### GEERS \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \				
NAME OF POIVIDUANNIHO SURVEYED SITE DATE TITLE				
- UNTA イルニ イス (注意) - J. Dean Geers PS#33977 8-3-94 Professional Surveyor - !				
WILCOX ASSOCIATES, INC. 7711 S US-131, Cadillac, MI 49601				
WILCOX ASSOCIATES, INC. 7711 S US-131, Cadillac, MI 49601  I CERTIFY THE AROUSE INFORMATION IS COMPLETE AND ACCURATE TO THE BEST OF MY KNOWLEDGE AND BELIEF.				
SIGNATURE (Applicant or authorized representative)  ADDRESS (If different than Lessee)  DATE (Month Day Year)				
2 5 1			-1 -	
Jamence . Dean			8-9-91	7

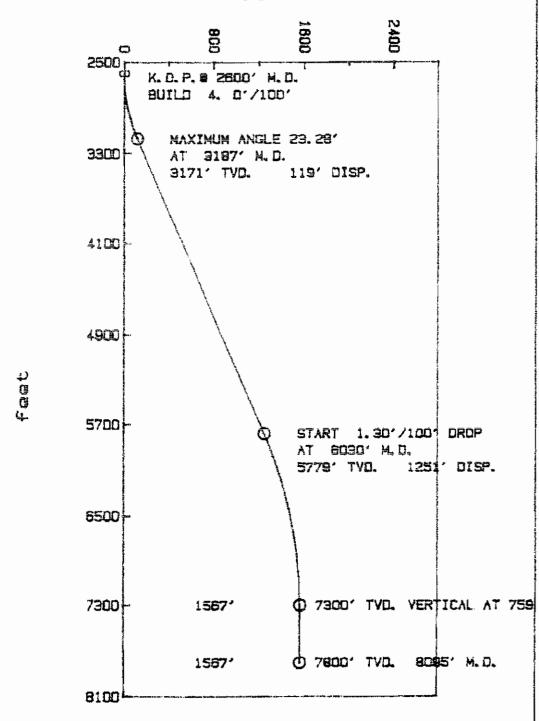
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VERTICAL SECTION 1 IN. = 800 FT.





KALIUM CHEMICAL OBJECTIVE NO. 1:

KALIUM HERSEY WELL # 1032 HERSEY TOWNSHIP . OSCEOLA COUNTY 7595' M. D. 7300' TVD.

1567' S39.14'E OF SURFACE LOCATION

1214' SOUTH 991' EAST

PLAN VIEW 1 IN. - 400 FT.

OBJECTIVE NO. 2:

1567' S39.14'E OF SURFACE LOCATION

8095' M.D. 7800' TVD.

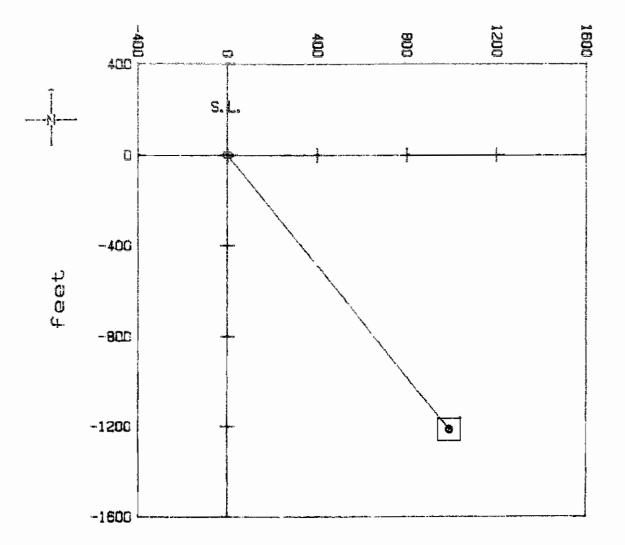
1214' SOUTH 991' EAST

SUBMITTED BY:

Directional Drilling Contractors. Inc.

100'X 100' TARGET

feet



# STATE OF MICHIGAN MINERAL WELL OPERATORS ENVIRONMENTAL IMPACT ASSESSMENT

### Well Identification

Name and Address of Applicant: Kalium Chemicals, Ltd.

11461 S. 135th Avenue

P. O. Box 333

Hersey, MI 49639-9762

Well Name and Number: Kalium Hersey #1032

Surface Location: NW 1/4 of SW 1/4 of NW 1/4

Bottom Location: SW 1/4 of SE 1/4 of NW 1/4 Section 26, T 17 N, R 9 W

Hersey Twp., Osceola Co., MI

## I. Description of Project

A development well is to be directionally drilled from a surface location 1274 feet from the South line and 660 feet from the West line of the Northwest 1/4 of Section 26, T17N, R9W, to a bottom hole location 60 feet from the South line and 989 feet from the East line of the same Northwest 1/4 of Section 26, T17N, R9W. The well will be directionally drilled from a new surface location with 30 inch conductor pipe. The well will be drilled to a total anticipated vertical depth of 8000 feet for the evaluation and production of sodium and potassium mineralization through the Niagaran Formation, with total depth in the A-1 Evaporite Formation. The well is located in the Northwest 1/4 of Section 26, T17N, R9W, Hersey Township, Osceola County, Michigan. Surface and mineral rights for the entire Northwest 1/4 of Section 26 are in private ownership and all concerned parties have been informed of the proposed well location and advised of our intentions to complete an application for a permit to drill this mineral well.

The proposed well is part of a project involving several other wells. All wells will be drilled from a common drilling pad area. The area will be on an extension to the South of the existing pad. The new pad area will extend 150 feet South of the existing pad and will require a moderate amount of earthwork for leveling and pad preparation. The land surrounding the wellsite is rolling, open, dormant field. Land use in the surrounding area is mixed agricultural and forest recreational. Natural topography at the site had been a ridge and drainage is both West and East. The drainage to the Northwest is toward Polick Creek, while that to the Northeast is toward Bull Hill Creek. Both creeks are over 1/4 mile away and are part of the Muskegon River watershed. There are no lakes or principal streams within 1/4 mile of the wellsite, however, there is a small seasonally wet area approximately 1200 feet Northeast of the location.

# ENVIRONMENTAL IMPACT ASSESSMENT - MINERAL KALIUM - KALIUM HERSEY #1032 PAGE 2

Access to the location will be from the Southeast, along an existing Kalium Chemicals, Ltd. road. This road originates at 135th Avenue, an all-season bituminous surfaced County road running along the North-South 1/4 line of Section 26. Emergency access is also available from the West off of 140th Avenue, a gravel surfaced County road located along the West line of Section 26.

### II. Environmental Impact Assessment

The drilling of the well at this location should have only a minor effect on the ecological system of the vicinity. Wildlife is abundant throughout the region, but no special or endangered species are known to exist in the vicinity of the proposed project. The proposed project should have only a slight effect on future population patterns.

The proposed project is for further development and production for solution mining operation purposes. A 7 inch casing will be set to the A-1 Evaporite and cemented back to 5500 feet, below the intermediate casing in this solution mining well.

A minimal disruption to the environment will result by concentrating this well in the same areas as those which have already been drilled. A total area of approximately 7-1/4 acres has previously been prepared and up to an additional 1/2 acre will be prepared for drilling this well and two future wells. Tree removal is not necessary to clear the drilling pad. Appropriate drill site drainage and sedimentation control measures have been incorporated in the operational plan. The new pad will be hard surfaced, as necessary, to provide containment of all drilling fluids. We have not experienced any unusual erosional problems at this location.

Due to environmental considerations, Kalium Chemicals, Ltd. does not plan to use conventional reserve pits. The well will be drilled using a pit liner rig base sealed around the cellar, rathole, and mousehole for containment of fluids. The following special measures will be taken in the handling of drilling solids and fluids. The drilling fluids will be circulated through closed-looped working pits. The solids control in the drilling fluid will be handled through a special flocculent and centrifuge system to provide effective separation of the brine from the drill cuttings. Brine will be disposed of in an approved disposal well. The semi-dry drill cuttings will be temporarily stored on an impervious barrier at the drilling location. The barrier will be sloped such that any leachate will collect at a central location to allow easy recovery and subsequent disposal in a disposal well. The volume of the containment area, including its side-dikes will be such, as to hold several days of precipitation, in addition to holding the drilling cuttings expected from the wells. Final disposition of the cuttings will be at an approved landfill site.

## ENVIRONMENTAL IMPACT ASSESSMENT - MINERAL KALIUM - KALIUM HERSEY #1032 PAGE 3

Access to the wellsite will be from the Southeast off 135th Avenue and will utilize the existing service road. Emergency access is also available from the West off 140th Avenue. No new access trail will need to be constructed.

Although other wells at this location have not encountered significant concentrations of hydrogen sulfide gas, intentions are to proceed as if the possibility does exist at this location. Appropriate safety measures will be taken. In general, the Administrative Rules for the Management of Hydrogen Sulfide, effective September 2, 1987, prepared by the Geological Survey Division of the Department of Natural Resources, will be observed. The site is well isolated from human habitation. There is only one residence within 1/4 mile of the wellsite, lying approximately 1/4 mile Southwest of the surface location.

An existing water supply well had been drilled for use in drilling the previous wells. This same water well will be used in drilling the proposed mineral well. Immediately following the drilling and completion operations of all wells which are part of this project, the well will be properly abandoned.

Upon completion of drilling and producing operations the well will be plugged in accordance with Michigan Department of Natural Resources instructions prior to abandonment. The drilling pad area will be fine graded, stabilized, and restored, as nearly as possible, to its original condition. This project is expected to have only a slight effect on the immediate environment.

### III. Possible Alternatives to the Proposed Well Location

The proposed location has been selected on the basis of a geologic interpretation and an extensive on-site evaluation. By drilling this well from a common drilling pad with others, a minimal disruption of the environment will result. Preparation of the drilling pad will not require additional tree removal. No new access trail will be required. The proposed project area is well isolated from surface waters and human habitation. We believe the site is generally well suited for the undertaking of this project and that adequate protection of the environment can be maintained at this location. For these reasons, we believe that drilling the well from the surface location proposed is the best available alternative.

## IV. Any Irreversible and Irretrievable Commitment of Resources

The proposed project should not require a significant commitment of natural resources. The productivity of the land utilized for the drilling pad and access road will be lost during the life of the project, but the surface resources of the drill site will not be irreversibly committed. Drilling of the well will not curtail the use of the surrounding environment.

ENVIRONMENTAL IMPACT ASSESSMENT - MINERAL KALIUM - KALIUM HERSEY #1032 PAGE 4

#### V. Summary

In order to minimize surface disturbances, this development well is to be drilled from a common surface location which has been used for other wells in this 1/4 section. The total surface area necessary for this project encompasses approximately 7 3/4 acres. The drilling pad is located on rolling, generally open land. The drill site and the surrounding 7 3/4 acres are a part of the commercial potash solution mining facility operated by Kalium Chemicals, Ltd. Land use in the surrounding area is mixed agricultural and forest recreational. Natural drainage from the location is both Northeasterly and Northwesterly toward tributaries of the Muskegon River. There are no lakes or principal streams within 1/4 mile of the proposed wellsite, however, there is a small, seasonally wet area located approximately 1200 feet Northeast of the wellsite. Appropriate drill site drainage and sedimentation control measures have been included in the operational plan. Although it is not anticipated that sour gas will be encountered at this location, the intention is to proceed as if the possibility exists. Access to the wellsite will be from the Southeast off of 135th Avenue and will utilize the existing service road. Emergency access is also available from the West off of 140th Avenue. We consider the environmental impact of this project to be minimal, and will make every effort to insure protection and preservation of the environment during the course of our drilling and producing operations.

Applicant's Representative

Comments by Department of Natural Resources Representative:

Authorized Representative



### Kalium Chemicals P.O. Box 290, 11461 South 135th Avenue Hersey, Michigan 49639 Telephone: (616) 832-3755 Fax: (616) 832-3349

Mr. William R. Lee
Permit Coordinator
Permits and Bonding Unit
Geological Survey Division
Department of Natural Resources
P. O. Box 30256
Lansing, MI 48909

#### RE: <u>Casing and Cementing Procedures for</u> Kalium Hersev 1031 and 1032

- 1. Conductor pipe of 30 inch diameter will be driven to refusal in this well. Surface hole will be drilled with a 17-1/2" bit 100 feet into the competent rocks of the Michigan Group at a depth of approximately 800 feet. New 13-3/8 inch, 54.50 #/foot, J55 casing will be run to bottom with a Texas pattern shoe. The bottom three joints of casing will be strapped across the collars in three sections. The casing will be cemented with returns to surface. Wait on cement time will be 16 hours.
- 2. The 12-1/4 inch intermediate hole will be drilled directionally to the Amherstberg Formation (Black lime) at a depth of approximately 5250 feet (5100 feet T.V.D.) as local drilling shows no lost circulation zones deeper. Intermediate casing, new 9-5/8 inch, 40 #/foot, K-55 seamless casing, will be set at this depth and two stage cemented to surface as per cementers recommendations in line with accepted cementing practices.
- 3. The 8-1/2 inch production hole will be drilled into the A-1 Evaporite at a depth of approximately 8000 feet (7800 feet T.V.D.). The primary objective of this well is the evaluation and production of the potash mineralization of the A-1 Evaporite. The evaluation program will consist of coring the mineralized section of the A-1 Evaporite and appropriate geophysical logs. Production casing will be new 7 inch, 23 #/foot, L-80 seamless casing set in the A-1 Evaporite and cemented back to 5500 feet with premium cement.

leb200 1

4. After the well operations have ceased, it will be plugged and abandoned according to Department of Natural Resources requirements.

Respectfully submitted,

hawrence E. Bean Minefield Supervisor

cc: Robert E. Thompson

Jack Rokos

William E. Booker, Acting Cadillac District Geologist

#### WELLHEAD BLOWOUT CONTROL SYSTEM

Optional worksheet supplement for Application For Permit to Drill Deepen Rework or Operate a Well " By Authority of Act 61 P.A. 1939 as amended or Act 315 PA 1969 as amended

#### STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES GEOLOGICAL SURVEY DIVISION

Box 30028 Lansing, Michigan 48909

	943/5
COMPANY	WELL NAME AND NUMBER
Kalium Chemicals, Ltd.	Kalium Hersey #1032
I.OCATION	
SHL - NW 1/4 of SW 1/4 of NW 1/4 of Section	on 26, T17N, R9W, Hersey Twp., Osceola Co., Mon 26, T17N, R9W, Hersey Twp., Osceola Co., M
BHL - SW 1/4 of SE 1/4 of NW 1/4 of Section	n 26, T17N, R9W, Hersey Twp., Osceola Co., M
	<i>A</i>
Annular B.O.P. 13 <sup>3</sup> /8 "x 5000 W.P. 6	B O P
V	———∜ <u>B.O.P.</u>
	□ Manual
	<u>πlan</u> ⊠ Hydraulic
<u> </u>	<u> </u>
n (i)	◯ n ⊠ Sour trim
BOR Rams 13 <sup>3</sup> /8"x 5000 WP	
(Pipa/Blind)	
4 Q LIMITUU II	B.O.P. —— Rams133/g." x 5000 W.P.
	THE CHAPTER OF THE CH
	Hyd Valve 3 ". 5000 W P
-Check Valve 2"x 5000 W.P.	
\	/
Valve 2 " 5000 W.P.7	
Flow	Line 2 "Line
Flow         (((°(°))))             ((°(°)))	MANIFOLD LINE
	MANIFOLD LINE
KILL LINE MANIFOLD	
Spoo <u>l 133/8</u> x 5000 W.P	<del></del>
ANYANA Ground Level	
	/
Fill blanks with applicable information. If not applicable, e	enter "N.A." or cross-out item shown. Enter other pertinent
nformation below.	
This BOP system to be used on surface casi	ing while drilling to intermediate casing point.
This sor system to be used on surface casi	ing write a title to titlermediate casting points

# SOUR GAS CONTINGENCY PLAN - PART II KALIUM HERSEY #1032 SECTION 26, T17N, R9W, HERSEY TOWNSHIP, OSCEOLA COUNTY, MICHIGAN

#### **RESIDENTS WITHIN 1/4 MILE OF WELLSITE**

1. Douglas Dailey 11431 S. 140th Avenue Hersey, MI 49639 Phone: 616-832-4698

P-1/28/05/CT8/9/27/1/CT8/1/27

#### **EMERGENCY TELEPHONE NUMBERS**

Name	Location		Number
Company Personnel Larry Bean	Hersey, MI	(Office)	616-832-3755
Don Purvis	Hersey, MI	(Office)	616-832-37 <b>5</b> 5
MDNR Hal Fitch	Cadillac, MI		616-775-9727
Raymond Vugrinovich	Lansing	(Office) (Home)	517-334-6951 517-339-9547
Sheriff	Osceola Cour	nty	911 or 616-832-2288
State Police	Reed City, M	I	911 or 616-832-2221
Ambulance	Alpha i N. Patterson Reed City, M		911 or
Hospital	Reed City Ho N. Patterson Reed City, M	Road	616-832-3271
Fire Department	Hersey, MI		911 or 616-832-3255
Director of Emergency Services Dallas Jenks	Osceola Co.	(Office) (Emergency)	616-832-6172 911
Pollution Emergency Alerting System (PE	AS)		800-292-4706

SOUR GAS CONTINGENCY PLAN - PART II KALIUM - KALIUM HERSEY #1032 PAGE 2

#### NEAREST PUBLIC TELEPHONE

The nearest public telephone is located in front of the General Store in the town of Hersey. It is located North 1/2 mile on 140th Avenue, then West 4 miles on Hersey Road to the general store in the town of Hersey, on 180th Avenue.

#### MUD TREATMENT

A gas buster will be provided.

NOTE: For location of residences, public gathering places and evacuation routes, see vicinity map.

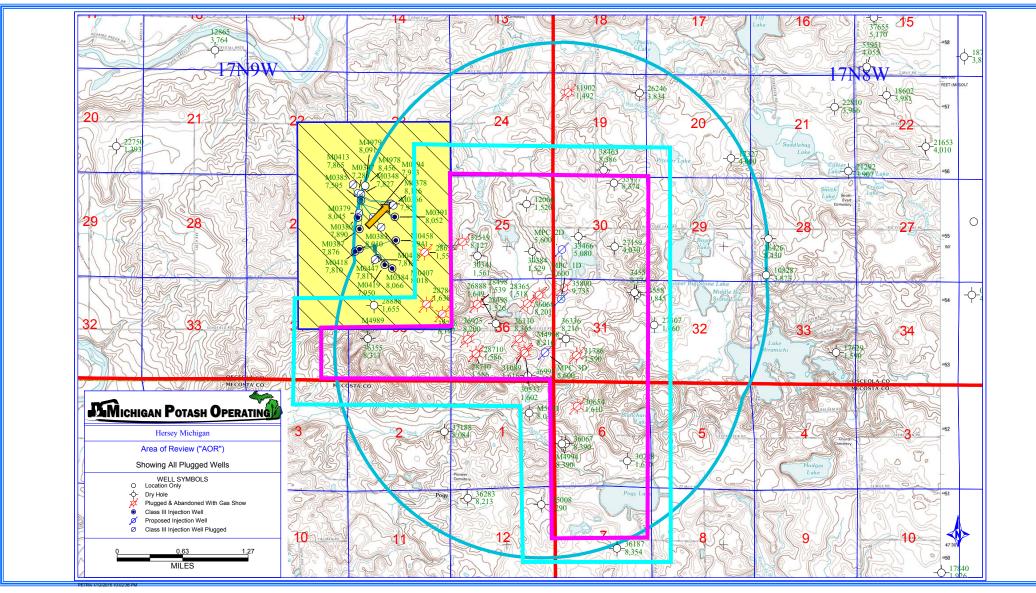


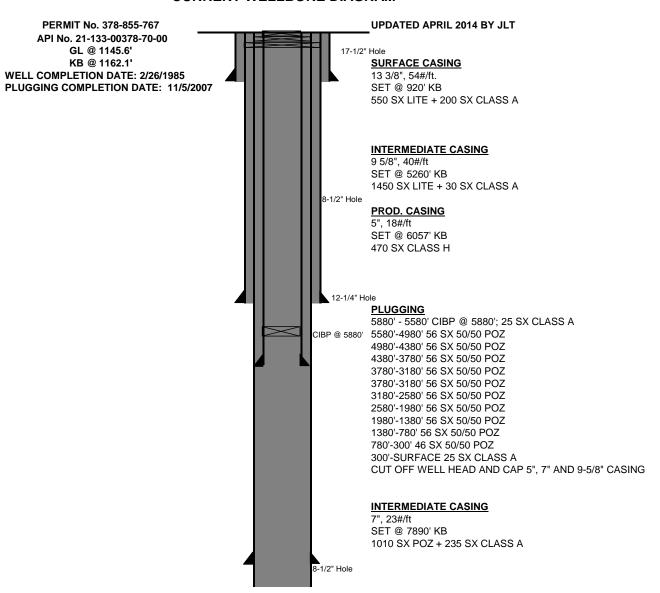
Figure B4. Map showing all plugged wells, shallow (that do not penetrate any confining horizon) or deep (that penetrate confining horzion) within the area of review. Total Depths are listed. There are several shallow Michigan Stray wells that do not penetrate the injection or confining horizon.



#### **KALIUM 1042**

## SW NW NW Sec 26 T17N R9W OSCEOLA COUNTY, MI

#### **CURRENT WELLBORE DIAGRAM**



PBTD @ 7920' KB TD @ 8116' KB

#### **KALIUM 1042 WELL HISTORY**

DATE **DESCRIPTION** 2/24/1985 SPUD. DRILLING COMPLETED. 11/5/2007 13 3/8" SET AT 920'; 550 SX LITE + 200 SX CLASS A 9 5/8" SET AT 5260'; 1450 SX LITE + 300 SX CLASS A 7" SET AT 7890'; 1010 SX POZ + 235 SX CLASS A 5" SET AT 6057'; 470 SX CLASS H 11/2/2007 PLUGGING START DATE SET CIBP @ 5880' 5/13/1999 11/2/2007 5880' - 5580' CIBP @ 5880'; 25 SX CLASS A 11/5/2007 5580'-4980' 56 SX 50/50 POZ 4980'-4380' 56 SX 50/50 POZ 4380'-3780' 56 SX 50/50 POZ 3780'-3180' 56 SX 50/50 POZ 3780'-3180' 56 SX 50/50 POZ 3180'-2580' 56 SX 50/50 POZ 2580'-1980' 56 SX 50/50 POZ 1980'-1380' 56 SX 50/50 POZ 1380'-780' 56 SX 50/50 POZ

CUT OFF WELL HEAD AND CAP 5", 7" AND 9-5/8" CASING

11/5/2007 PLUGGING COMPLETED

780'-300' 46 SX 50/50 POZ 300'-SURFACE 25 SX CLASS A



MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY - OFFICE OF GEOLOGICAL SURVEY

#### **RECORD OF V** OR CHANGE O

RECORD OF WELL PLUGGING	Permit number	Well name and	number			
OR CHANGE OF WELL STATUS	378-855-767	Kalium 1042	2			
	API number					
Required by authority of Part 615 Supervisor of Wells or	MI-133-3G-A002					
Part 625 Mineral Wells of Act 451 PA 1994, as amended	Name and address of	permittee				
Non-submission and/or falsification of this information may result in fines and/or imprisonment	Mosaic Potash He 1395 135 <sup>th</sup> Ave	ersey				
	Hersey Mi 49639					
Part 615 Oil/Gas Well Plugging	İ					
Part 625 Mineral Well						
Name and address of contractor/service company	Type of well	Field name				
Mosaic Potash Hersey	Solution Mining Kalium (Mosaic Potash)					
1395 135 <sup>th</sup> Ave	Surface location					
Hersey, Mi 49639	SW 1/4 NW 1/4	4 <b>N</b> W1/4	Sec 26 T 17N R 9W			
	Township	_	County			
	Hersey		Osceola			
	Date plugging/change	started	Date plugging/change completed			
	11/2/2007	11/5/2007				
DEQ employee issuing plugging permit or approving Change of Well Status			Date issued			

Raymond Vugrinovich Any change of well status which results in a change of production or a change in injectivity must include production or injection test records. All records must include a narrative or daily chronology and signed certification noted on reverse

			(Hole	WELL PLUGGIN conditions after p				
_		_		CASING	<u> </u>			
	Casing size	When	e set	Amount ca	asing pulled	Depth casing cut/per	rfed; or windo	ws milled
13 3/8"	54#	920'		0	-			
95/8"	42#	5260'		0				
7"	23#	7890'		0				
5"	18#	6057'		0				
			71791948AG44					
		Make and tree	1 0-	PLUGS	1 Addition Long	Materia and trans	1	Tanad
Dep	th of plug	Make and type of bridge or plug	I .	ment plugs: type ount of cement &	Additives type and percent	Volume and types of spacers/flushes	Wait time	Tagged Top?
Bottom	Тор			mix water		,		Y/N
5880'	5580'	CIBP @ 5880'	25 Sacks	Class A	None	FW/ 21.5 BBL	60 HRS	Υ
5580'	4980'		56 Sacks	50/50 Poz	None	FW/ 19 BBL	0	N
4980'	4380'		56 Sacks	50/50 Poz	None	FW/ 16.9 BBL	0	N
4380'	3780'		56 Sacks	50/50 Poz	None	FW/ 14.6 BBL	0	N
3780'	3180'		56 Sacks	50/50 Poz	None	FW/ 12.3 BBL	0	N
3180'	2580'		56 Sacks	50/50 Poz	None	FW/ 9.9 BBL	0	N
2580'	1980'		56 Sacks	50/50 Poz	None	FW/ 7.6 BBL	0	N
1980'	1380'		56 Sacks	50/50 Poz	None	FW/ 5.3 BBL	0	N
1380'	780'		56 Sacks	50/50 Poz	None	FW/ 3 BBL	0	N
780'	300'		46 Sacks	50/50 Poz	None	FW/ 1 BBL	0	N
300'	Surface		25 Sacks	Class A	None	0	0	N
☐ Check	if NORM or oth	ner materials were left or	reinserted into	wellbore. If so, describ	e materials fully in the	Daily Chronology sect	ion on revers	e.

Mail completed original and three copies to the appropriate DEQ district office within 60 days after completion of plugging/change of a Part 615 oil/gas well or within 30 days of a Part 625 mineral well.

OFFICE OF GEOLOGICAL SURVEY MICHIGAN DEPT OF ENVIRONMENTAL QUALITY PO BOX 30256 LANSING, MI 48909-7756

Check if cares were taken and attach core descriptions

API num MI-133-3												
					CH.	ANGE OF W						
Change w	as to:		Convert current Production Disposal Secondary Storage Other	1	Remed	liate well: orf and test exis opair casing/cer ther	ting zone nent	Plugback New	_	n zone	Collaps	ntal drain hole sed casing eam open hole
· · · · · · · · · · · · · · · · · · ·					— Well c	asing record -	BEFORE cl		<del></del>		Other_	
	Casing Cement			1	Perforat		. rango					
Size		Depth	Sacks	Туре	From	То	If plugged,	HOW?		Acid or fra	cture treatme	ent record
		_										
Ca	asing	_	Well casing i	record - AF	TER change	e (Indicate add Perforat		hanges	only, com	plete test	record)	
Size	Į ū	epth	Sacks	Туре	From	То	if plugged,	HOW?		Acid or fra	cture treatme	ent record
			1		<del>                                     </del>		1					
	ļ		BEEOD	E CHANGE		<u> </u>	1		<u> </u>	TER CHAN	<u></u>	
Total depti	h	Cor	mpleted Fm	Well comp	oleted for		Total depth	Con	npleted Fm		completed fo	or .
BOPD	DPD MCFGPD Inj Rate		Pre	essure	BOPD MCFG		FGPD	Inj Ra	ate	Pressure		
			LY PRODUCT	ION TEST R	ECORD		DAILY INJE	ECTION T	EST RECO	ORD   Ir	jection well	Brine disposal
Doto	!	Oil	Water	Gas		essure		Bbls w		Pres		Specific gravity
Date	(0	bls)	(bbls)	(Mcf)	Tubing	Casing	# Date	or Mcf	gas E	Beginning	Ending	of water
					<u> </u>	<u> </u>	<u>                                     </u>				<u> </u>	
-					_		1					
						<u> </u>			•			
Describe in	detai	the daily	y chronology of	change/plugç	jing, include d	DAILY CHRO	Describe excep	otions to is:	sued pluggi	ng instructio	ns Describe	tools, tubing, etc.
Date		v logs n		es pits filled s	surrace restore	d etc Use addit	ionai pages as	needed				
5/13/199 11/2/200 11/5/200	9 3	Set Cli Set 25	3P @ 5880' Sacks of Cl	lass A @ 5	-	lown pipe an					)/50 Do- 6	0 4090' and
1 1/3/200		_/D pip	e. Set 56 S	acks of 50	/50 Poz @	60 Poz @ 556 : 4380' and L d L/D pipe S	/D pipe. Se	t 56 Sad	cks of 50	/50 Poz (	@ 3780' ar	nd L/D pipe
		Sacks 50/50 F	of 50/50 Po Poz @ 780'	z @ 1980 <sup>;</sup> and L/D pi	and L/D p pe. Set 25	ipe. Set 56 S Sacks of Cla and 9 5/8 in	acks of 50/ ass A @ 30	/50 Poz	@ 1380	and L/D	pipe Set 4	6 Sacks of
of a plugge CERTIFIC	Jnder ed we ATIO	Part 61 li. N "I stat	5 Supervisor o	of Wells or Pa	art 625 Minera		1 PA 1994, as					lity for the integrity
Name and William (			_ or typed) Minefield Su	upervisor)		Autho	rized signatur	· Ku				Date 11/13/2007
		`		·	is completed	cellar rat and i	mouse holes	and nits fi	illed site le	veled and	cleaned and	records filed



## **Central Michigan Cementing Services**

1934 Commercial Drive • Mt. Pleasant, MI USA 48858 Phone: 989/775-0940 • Fax: 989/773-0943 midstatetools@msn.com

#### **FIELD PLUGGING SUMMARY**

COMPANY MOSIAC	Pot ASh			DATE	2-07	JOB #
WELL NAME HERSEY				NO		
LOCATION HEISEY DIAN	T	COUNTY				
CONTRACTORS NAME _ /770 S						
JOB DESCRIPTION Plug to	Adando.	ے _				
RUGJOABANDON		tank to research that the first of the	l Ping#	P18G#	1 PLUS	# 1 FUE#
SIZE OF PIPE IN HOLE	5 18	1:				
CALCULATED TOP OF PLUG FT.	5580				1	
DEPTH TO BOTTOM OF PLUG FT.	5880					
SACKS OF CEMENT USED	25			7 -5000-000-000-000-000-000	Ì	
SLURRY VOLUME USED BRI S	5.2			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
TYPE OF CEMENT USED	A		e de la companya de l			
AVER, SLURRY WT. LB./GAL.	15.6					
TYPE OF SPACE USED	zω					
FEET OF FILL IN HOLE	300				200	
SIZE OF TUBING USED	23/8					
TUBING VOLUME DISP. BBL.	a1.5					
SQUEEZE DATA			DEPTH OF SQ	USEZE ENTRY		
NO. OF SACKS SQUEEZED			MAX PSI OF S	QUEEZE		
PROCEDURE USED Ris to	23/2 TU	6.70 t	B. Cina	the troo	S404	2556 cmt
P 5880 21	21.5 BBL	Diso	TOH	Abour	ent.	TOP & Rev
40BBG FW	Ric Do.					
	Ų					
- 15%						
TOTAL MATERIAL USED		2ء	53/s C	145S A C	Emw 1	
DATE OF JOB COMPLETED	11-20	7	TICKET NO	237	R	
PUMP # 156			BULK #			
CEMENTER STAHL						
COMMENTS			<del>_</del>			
				·····		



## **Central Michigan Cementing Services**

1934 Commercial Drive • Mt. Pleasant, MI USA 48858 Phone: 989/775-0940 • Fax: 989/773-0943 midstatetools@msn.com

#### **FIELD PLUGGING SUMMARY**

COMPANY ///65.14c	ric dri	and the second s		DATE //	5-67 j	OB #
WELL NAME HOUSE	Plant.			NO	1042	
Ť.	1	COUNTY	050201	STATE_	117 % TWP.	Hersey
CONTRACTORS NAME	1					·
JOB DESCRIPTION	: Aldrin	des			<del></del>	
PLUG TO ABANDON	PLUG # 7 / 1	PLUG# 🌊	PLUG# 3	PLUG#4	PEUG#	PLUG# 🔏
SIZE OF PIPE IN HOLE	5		4	3,000-3	5	5
CALCULATED TOP OF PLUG FT.	4780		2760	. 3/80	2788	1980
DEPTH TO BOTTOM OF PLUG FT.	5583	4986	4380	3780	3180	9580
SACKS OF CEMENT USED	J.C.	Line how	5%	24		.56
SLURRY VOLUME USED BBLS	/Q.\$a	10.6	106	10.6	10,6	10.6
TYPE OF CEMENT USED \$ 6 &	30130	3420	50/5,0	50/50	50/50	39/5 4
AVER, SLURRY WT. LB./GAL.	75,4	15.4	Panis A	154	15.4	15.4
TYPE OF SPACE USED	FW	67510	FW	F()	File .	Je low
FEET OF FILL IN HOLE	400	7.00	600	600	600	600
SIZE OF TUBING USED	17/4	276	2-15	5 Va	J <sup>3</sup> /6	236
TUBING VOLUME DISP. BBL.	19	16.7	J.L. (	Land Land State Commence	<u> </u>	7.6
SQUEEZE DATA	atti tima s <sup>2</sup> (1- <sup>2</sup> m mis Ahinda missa a simia ti anti sa a simia timba missa a si		DEPTH OF SQ	ueeze entry		* * * * * * * * * * * * * * * * * * *
NO OF SACKS SQUEEZED			 MAX PSI OF S			
PROCEDURE USED						The second of th
		-				
				-	*	
					. ;	
						2000年1月1日 1900年1月1日
				<u> Brajakira</u>	y y constraint of	
TOTAL MATERIAL USED	<u> </u>	499	5/5 50	150 Poz		
	<u> </u>	<u> </u>	SLS (1), i	55 A CE	200	
		- <u> </u>				
DATE OF JOB COMPLETED	11-5-07	<u> </u>	TIÇKET NO		2379	
PUMP # 156	<u> </u>		BULK #	703		
CEMENTER 10 STATE	<u>*                                      </u>					
COMMENTS				<u> 1743 (Pr. 17</u> )	撃 <u>「大学でき</u> いだだねら	
	. <u> </u>	· · · · · · · · · · · · · · · · · · ·	<u> </u>			
	<u> </u>		<u> </u>			- · · · · · · · · · · · · · · · · · · ·
	<u> </u>	<u> </u>			· · · · ·	



### **Central Michigan Cementing Services**

1934 Commercial Drive • Mt. Pleasant, MI USA 48858 Phone: 989/775-0940 • Fax: 989/773-0943 midstatetools@msn.com

#### **FIELD PLUGGING SUMMARY**

COMPANY MOSING	Fordish			DATE //- :	5-07	JOB #
WELL NAME HOSEY FL	) . <u>[</u>			N0	142	
LOCATION HESSE		COUNTY		STATE_		
CONTRACTORS NAME 177 03						
JOB DESCRIPTION July 10	Albando					
Way and the said of the said o		-27 1 N 700 T 220 T 10 T 10 T 10 T 10 T 10 T 10 T	and the second	l hung w	B 86 7/	THE PURIOR IN
PLUG TO ABANDON	PLUG # /	PLUG # 🌼	PLUG # %	PLUG # / 5	PLUG #	PLUG #
SIZE OF PIPE IN HOLE  CALCULATED TOP OF PLUG FT.	/180	780	. 300	Spetace.		
DEPTH TO BOTTOM OF PLUG FT.	1480	1386	780	300		
SACKS OF CEMENT USED	54	54	100 46	25		- Augusta and Augu
SLURRY VOLUME USED BBLS	10.6	10.6	8.8		ļ.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	A CONTRACTOR OF THE PERSON NAMED IN COLUMN 1
TYPE OF CEMENT USED	30/20	50/10	50/50	14		
AVER, SLURRY WT. LB /GAL.	15.4	15.4	15.4	136		
TYPE OF SPACE USED	1.0	Evi	EW	IW)	<u> </u>	
FEET OF FILL IN HOLE	600	600	480	300	<del></del>	
SIZE OF TUBING USED	276	and the same of the same	23/4	278	<u> </u>	
TUBING VOLUME DISP. BBL.	3.3		1	0		
	1	Although 5	X X	SECTION STATE		
SQUEEZE DATA		-	DEPTH OF SQ	UEEZE ENTRY		
NO. OF SACKS SQUEEZED			MAX PSI OF S	· · · · · · · · · · · · · · · · · · ·		
PROCEDURE USED						
			-			
A Company of the Comp						
	*	-				
				S. 1. (5) (11)		
TOTAL MATERIAL USED		49	4 S/s 50	to Poz		
		52 2	TSKECIA	35 17 Con	xe-7	1
	·				24,	
DATE OF JOB COMPLETED	11.5 07		TICKET NO	237	1	
PUMP # 15TG			BULK #	763		
CEMENTER SSS7AHC	- , 10, 11		· · · · · · · · · · · · · · · · · · ·		7	
COMMENTS				1 (1) (1) (1) (1) (1) (1) (1) (1) (1) (1		
27 434 F. AND TO 14 CO.				-		
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	. ,		<u> </u>	1		

		MICHIGA	AN DEPARTMEN	IT OF ENVIRONMENTA	L QUALITY - OFF	ICE OF GEOLOGICA	AL_SURVEY		
DE		APPLIC	ATION TO:		Permit number Type of well				
	☐ CH/	ANGE WE	LL STATUS	OR	378 -855 - 767 Solution Mining				
	🖾 PLU	JG AND A	BANDON WE	ELL	API number				
Required	by authority	of Part 615 S	Supervisor of Wel	lls or Part 625 Mineral	MI-133-3G-A	002			
				ubmission and/or	Name and addre				
talsificat	ion of this inf	ormation ma	ly result in tines a	and/or imprisonment	Mosaic Potas				
☐ Part 615 Oil or Gas Weil ☐ Part 625 Mineral Well			1395 135 <sup>th</sup> ave						
Change of	well status re	quested to:			Hersey Mi 49	639			
⊠ Plug ba		Perforate	☐ Tempora	rily abandon	Well name and				
Convert			Other	,	1042				
	ction/injection	rate and ty	pe of fluid		Well location				
May 199	5/ <u>300</u> q.p.	m / Recyc	le brine		SW 1/4 of N\	N 1/4 of NW 1/4	4 Section 26 ⊤1	7N R9W	
	iption of proje				Township		County		
			in back to sur	face and cut and	Hersey		Osceola		
	na 3' below			idoo diid odi diid	Date drilling con	npleted	Date last produce	d/utilized	
Cab casii	ia 5 below	oround R	2401		2/24/1985		May 1995		
Work to be	done by						Starting date		
1	otash Her	sev					6/1/2007		
1			-	CASING AND CEN	MENTING RECOR	D .			
Hole dia	Casing d	iia & wt/ft	Depths set		t quantity, type, ac		Cement top	Perforations	
17 1/2	13 3/8	54#	920	550 sacks lite and	200 sacks of	class A	Surface		
12 1/4	9 5/8	42#	5260	1450 sacks lite ar			Surface		
8 1/2	7	23#	7890	1010 sacks poz a			Surface		
	5	18#	6057	470 sacks class F			Surface		
					474				
Formation	record (forms	ation and de	pth of top, oil, gas	s and water shows, etc.):		- All Mary Property and the Control of the Control			
formation		depth							
Set a bri tubing th	rough the d	n 5 inch ca cement ar	nd then tag the	765 T V D Set the fi top of the plug to v 300 feet Set the fina	erify it's location	n. Start plugging	back to surface i	n 600 foot	
cap the c	cap the casing 3' below ground level								
Name/signa	ature (authori	zed represe			witer	SE ONLY	Date:	[18 67	
DEQ addition	onal requiren	ents:	<u></u>	OR OFFICE OF GEOLOG	SICAL SURVEY U	SE ONLT		· water and	
DEQ dddis	onar roquiron	iditis.							
							MAY 21		
·				ests to commence within	10 days of compl	etion and to be filed	ENVIRONMENTA	L QUALITY	
$\overline{}$		vice compar	ny records are to				UFFICE OF GEOLOG		
Approved b	y DEQ:	1		Office:		Approval date:	Termina	tion Date:	
Tay	maro 1	venno		LANSING		5/21/2007	5 21	1	
1	/	/ / Subm	it original and thr	ee (3) copies of this appl	lication to the Dist	rict Office within 60 da	ays ofchange of well	status	
	Note: Three copies of Record of Well Plugging or Change of Well status (EQP 7200-8) and any requested service company records are to be filed within 60 days of completion at the District Office								

EQP 7200-6 (rev 8/2004) side 1

DE®	MICHIGA	N DEPARTMENT OF ENVIRONMEN	TAL QUALITY - GEO	LOGICAL SURVEY I	DIVISION	
nes.			Permit number	Well type	Current true	vertical depth
REQUES	ST FOR TRA	NSFER OF PERMIT	378-855-767	Brine Prod.	7597	
			Well name and num	ber		
		Supervisor of Wells or Part 625 amended Non-submission and/or	Kalium 1042			
,		esult in fines and/or imprisonment	Surface location		_	
			SW 1/4 NW	1/4 NW 1/4	Section 26	T17N R9W
☐ Part 615	Oil/Gas Well	Part 625 Mineral Well	Township		County	
		_	Hersey		Osceola	
not be transferred t conditions at the we This permit does	o persons not in co ell site until complia not convey propo	oned upon compliance with the statute ompliance. A permit for a well shall no ance is achieved. The acquiring perm erty rights in either real estate or ma waive the necessity of seeking fede	ot be transferred if the ittee shall attach a cu aterial nor does it au ral and local permits	permittee is under no rrent Organization Re thorize any injury to s or complying with	otice because of eport (EQP 7200 o private prope	f unsatisfactory 0-13) erty or invasion of
Name(s) of Selling	Dormittae/a\	TRANSFER O	<u>FAPERMIT FROM</u>	<u> :</u>	Fed. ID#o	. С С Д
1 ',	. ,					
Kalium Chemica		Fown State, ZIP Code Telephone			_38-35455	
1395, 135th Ave		Town State, ZIP Code Telephone			231-832-3	2756
Hersey, MI, 496					231-032-	3733
All permits rights ar	nd responsibilities a	are discharged by:	_			
	micals, Limited ermittee	Colin Howard Authorized representativ	ve name	Signat	ure	16/04/2001 Date
P	ermittee	Authorized representativ	ve name	Signat	Ur <del>ë</del>	Date
P	ermittee	Authorized representativ	ve name	Signat	ure	Date
		TRANSFER	OF A PERMIT TO:	***************************************		
Name(s) of Acquiri	ng Permittee(s):				Fed. i D # o	r S.S #
IMC Potash He Address: Number a	rsev Inc. and Street, City or T	Fown State ZIP Code			ME01321 Telephone	84
1395. 135th Ave	enue				231-832-3	3755
Hersey Ml. 496	339					
(We are) (I am) an	owner or authorize nformity with the la	d representative of the owner of the water, regulations and orders.  tached Surety or Bank Roy	ell under this permit a	nd assume full respo	nsibility for the	drilling, operation, and
POND. LI Singi	C 44 CII	tached outery of Dank <u>1107</u>	ai Dank or Canada			

☐ Acquiring Owner

☐ Field

Permittee		Authorized represe	entative name		Signature	Date	
		TRANS	FER OF A PERMIT T	TO:			
Name(s) of Acquiring Permitte	e(s):			Fed. i D # or S.S #			
IMC Potash Hersey Inc.					ME013	2184	
Address: Number and Street,	City or Town State	ZIP Code			Telephon	e	
1395, 135th Avenue					231-83	2-3755	
Hersey Ml. 49639							
(We are) (I am) an owner or a abandonment in conformity wi			the well under this pern	nit and assume fu	III responsibility for the	ne drilling, operation, and	
BOND: Single Well	☐ Attached	Surety or Bank	Royal Bank of Cana	ıda			
⊠ Blanket	On File	Bond Number	P43087C00008	Amou	nt <u>\$25,000</u>		
☐ Statement of F	inancial Respon	sibility					
All permittee rights and responsible IMC Potash Hersey In Permittee		med by: Olin Howard Authorized represe	entative name	6	Sighature	16/04/2001 Date	
Permittee		Authorized represe	entative name		Signature	Date	
Permittee		Authorized represe	entative name		Signature	Date	
	FOR D	EPARTMENT OF	<u>ENVIRONMENTAL C</u>	QUALITY USE C			
Approved	Q (2)	Jam		MAY 0 8 2	Distribution b	y DEQ Selling Owner	

EQP 7200-7 (Rev 3/99)

Approved

Mail Original and 3 copies to:

Signature

GEOLOGICAL SURVEY DIVISION MICHIGAN DEPT OF ENVIRONMENTAL OUALITY PO BOX 30256 LANSING MI 48909-7756

Date

, STA	TE OF MICHIGAN	TYPE	OR PRINT
REQUEST FOR	TRANSFER OF A PERMIT	PERMIT NO. 7	WELL TYPE
SUBMIT 4 COPIES TO:	Department of Natural Resources	PERMIT NO 2 7 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Solution Mining
	Geological Survey Division	FIELD NAME	
	Box 30028		
	Lansing Michigan 48909	WELL NAME AND NUMBER	
	of well is required in accordance with Act	Kalium 1042 (	formerly PPG 1042)
	P.A. 1969 as amended and Administrative	WELL LOCATION	
Rules promulgated thereunder		SW 1/4 NW 1/4 NW 1/4 S	ECTION 26 7 17N 8 9W
		TOWNSHIP	COUNTY
TRANSFI	ER OF A PERMIT FROM:	Hersey	Osceola
NAME(S) OF SELLING OWNER(S)	· · · · · · · · · · · · · · · · · · ·		
PPG Industrie			
	City or Town State Zip Code Telephone		
	Pittsburgh, PA 1527	<u>'2 (412) 434</u>	<u>-2841</u>
All operating rights are discharged	by		
Own.r(s)	Representative(s)	Sign Herelal	Date(s)
		V// //	nalor 9/6/16
PPG Industrie	s, Inc. R.J. Samelson		yallow 1/6/10
			16
		1	
	14.400		
Children Communication Communi	LOP WITH V		
ELIGIBILITY FOR PERMITS	IS CONDITIONED UPON COMPLIANCE WITH	H THE STATUTES RULES AND	ORDERS OF THE DEPARTMENT OF
NATURAL RESOURCES PÉ	HMITS WILL NOT BE GRANTED TO PERSO	INS NOT IN COMPLIANCE	
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NON-30BMI33R	The state of the s		AND/OR INFRIGORANEIN
	TRANSFER OF	A PERMIT TO:	
NAME(S) OF ACQUIRING OWNER(S)			
Kalium Chemica	als. I.td.		
11126 South 14	40th Avenue Hersey, MI	49639 (6	16) 832-3206
(We) (I) have acquired the w	vell under this permit and assume full respons	ibility for the drilling operation an	d abandonment in conformity with the
law regulations and orders	5		
		1 1	1 1 2
SURETY BOND: SI	NGLE WELL 🔲 ATTACHED BONDING	5 co 1/C Back	11 Montreal
	ANKET ON FILE BOND N	£	L
All operating rights and re	sponsibilities are assumed by		
Owner(s)	Representative(s)	Signature(s)	Date(s)
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We like we Chart	d Eferra	A Land Val I	9-19-88
Kallum Chem	nicals, Ltd. Donald D	<u>Metzger Wowerou</u>	177
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	END DEDARTMENT OF MATER	AL BECOUREE LIST ONLY	
	FOR DEPARTMENT OF NATUR	TAL RESOURCES USE UNLY	
			DICTOR: TICH DV DVD
			DISTRIBUTION BY DNR
	2 0		<b>. ≜</b> Lansing
0	0 0 (///	-	Acquiring Owner
APPROVED Lefon		1-11-160	☐ Selling Owner
APPHOVED	Signature	Of 1155	Field
		7	

#### STATE OF MICHIGAN TYPE OR PRINT REQUEST FOR TRANSFER OF A PERMIT PERMIT NO WELL TYPE 048-841-367 Mineral Exploration SUBMIT 4 COPIES TO: Department of Natural Resources FIELD NAME Geological Survey Division Box 30028 Lansing Michigan 48909 WELL NAME AND NUMBER Filing for change of ownership of well is required in accordance with DAct (formerly PPG 1042) Kalium 1042 31 P.A. 1939 and XAct 315 P.A. 1969 as amended, and Administrative WELL LOCATION Rules promuigated thereunder SW 1/4 NW 1.4 NW 1/4 SECTION т. 17N н. 9W TOWNSHIP TRANSFER OF A PERMIT FROM: Hersey Osce<u>ola</u> NAME(S) OF SELLING OWNER(S) PPG Industries, Inc. ADDRESS: Number and Street — City or Town — State — Zip Code — Telephone One PPG Place, Pittsburgh , PA 15272 (412) 434-2841 All operating rights are discharged by Representative(s) PPG Industries, Ltd., R.J. Samelson ELIGIBILITY FOR PERMITS IS CONDITIONED UPON COMPLIANCE WITH THE STATUTES RULES AND ORDERS OF THE DEPARTMENT OF NATURAL RESOURCES PERMITS WILL NOT BE GRANTED TO PERSONS NOT IN COMPLIANCE NON-SUBMISSION AND/OR FALSIFICATION OF THIS INFORMATION MAY RESULT IN FINES AND/OR IMPRISONMENT TRANSFER OF A PERMIT TO: NAME(S) OF ACCURAGE OWNER(S) Kalium Chemicals, Ltd. ADDRESS Number and Street - City or Fown -- State -- Zip Corle -- Timphone 11126 South 140th Avenue Hersey, MI 49639 (616) 832-3206 (We) (I) have acquired the well under this permit and assume full responsibility for the drilling operation and abandonment in conformity with the law regulations and orders ☐ ATTACHED SURETY BOND: BLANKET ON FILE BOND NUMBER\_ All operating rights and responsibilities are assumed by Owner(s) Representative(s) Signature(s) Date(s) Kalium Chemicals, Ltd., Donald D.

FOR DEPARTMENT OF NATURAL RESOURCES USE ONLY

DISTRIBUTION BY DNR

APPROVED Slefan J. Signature

10/17/68

| Green Selling Owner |
| Selling Owner |
| Field

#### MINERAL WELL PERMIT For a Brine, Storage, or Waste Disposal Well

Permit Number 7	
<u>3つそ<b>948-855-</b></u> 67	
Data Issued	
9/9/85	

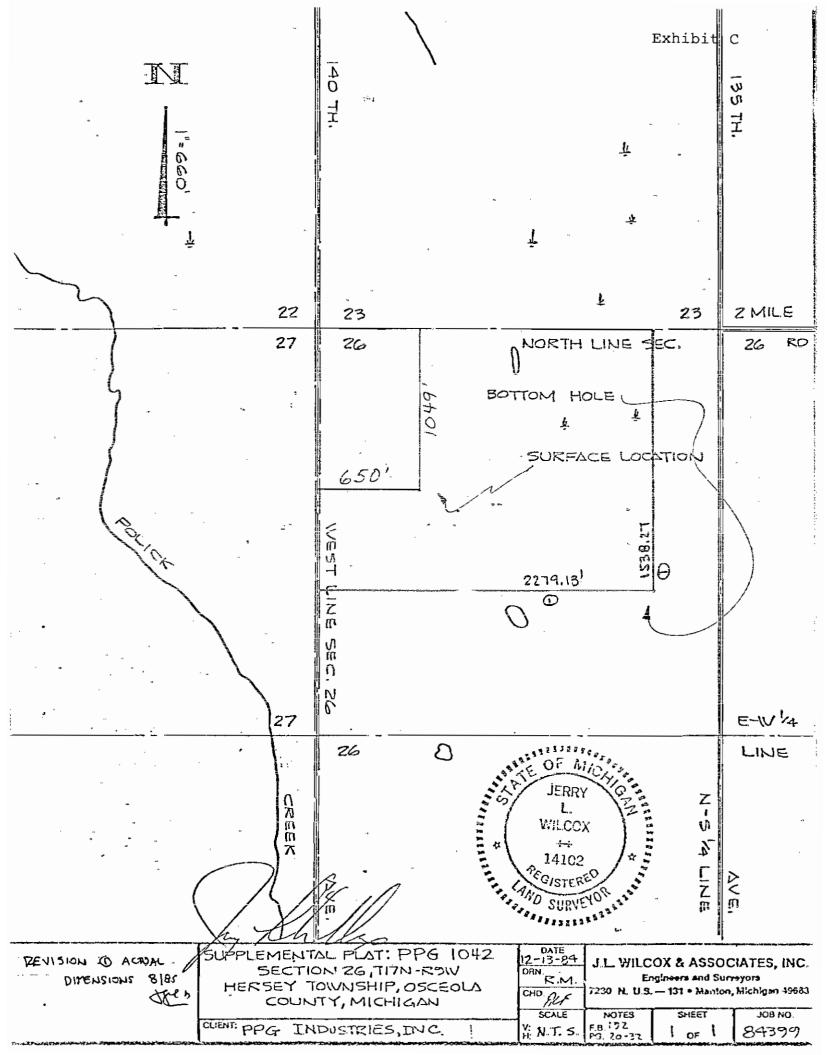
Permission is hereby granted to PPG Industries,	Inc.				
Permission is nereby granted to(Name)					
One PPG Place,, Pittsburgh, PA 15272					
	(Address)				
convert & operate		solution mi	nimb		
(Type of Operation)		(Type of Mineral Well)			
to be located inSW눌, NW눌 NW늄 Section 26,	T17N, LR9W, Her	sey Twp., Osceola County			
WELL NAME WELL	NUMBER FORMATIO	N (	INTENDED DEPTH		
· ·		jaran	8000'		
RBRF		RT GR			
SPECIAL INSTRUCTIONS: Well is to be dril	lled in accordan	ce with Supervisor of Wells L	etter		
or instruction #1-04. Same Surface	as Permit #048-	041-30/	_		
Permit is subject to the provisions and requirer issued by the Supervisor of Mineral Wells and the					
	onds Unit P.O. NOTICE	Box 30028, Lansing MI 48909, 5	517-373-9290		
1 This permit is issued on the basis of the appro- made without the permission and approval of t					
2. This permit shall be posted in a conspicuous p	place at the well loca	ition and remain posted until the operatio	n is completed.		
3. This permit will expire 6 months from date of ed and received an extension of time.	f issuance if operation	n has not commenced or if the operator h	as not request-		
4 An unusual, unexpected, or difficultly-controllab ardous to public health, safety or waters of the			condition haz-		
THE FOLLOWING SHALL BE NOTIFIED AT PRIOR TO THE COMMENCEMENT OF OPER		Cadillac Field Office 616-775	5-9727		
DISTRIBUTION: LINEN-APPLICANT 2 - LANSING 3 - FIELD 4 - APPLICANT					

PRINT OR TYPE INFORMATION. SEE INSTRUCT	FION SUCET D 7500 1 DECODE EII		67-85	-
STATE OF MICHIGAN	1. DATE OF APPLICATION	2 FEE ENC		
DEPARTMENT OF NATURAL RESOURCES GEOLOGICAL SURVEY DIVISION	3. APPLICATION TO	<u>  \$50.00</u>		
		1017		
APPLICATION FOR A MINERAL WELL PERMIT	Convert to Mineral 4. TYPE MINERAL WELL	5. WELL DE	SIGNATION	
To Drill, Operate, Convert, or Rework a Brine, Storage, Disposal, or Test Well.	Solution Mining	#1042		
By Authority of Act 315, P. A 1969 2 9 1985	SW 1/40f the NW 1/4 of the TOWNSHIP	8 COUNTY	т <u>17</u> N	<sup>₽</sup> 9₩
9 APPLICANT	<u>Hersey</u>	<u> </u>		LEPHONE
PPG Industries, Inc.				434-284
11. ADDRESS (Street, City State)				CODE
One PPG Place, Pittsburgh, PA			15272	
13 SURETY OR SECURITY COMPANY	14. TYPE	15 AMOUN		ON DNO
Hartford Accident & Indemnity 17 OWNER OR SURFACE RIGHTS	18 OWNER OR MINERAL RIGH	<u> </u>	<u> </u>	3230
PPG Industries. Inc.	PPG Industries, Inc			
19 DRILLING CONTRACTOR 20 ADDRESS	, , , , , , , , , , , , , , , , , , , ,		21 TE	LEPHONE
22 TYPE DRILLING TOOLS 23. FORMATI	- ·			TENDED
25. PRO JECT ENGINEER OR GEOLOGIST 26 ADDRESS	THE PARTY NAMED IN COLUMN TO THE PARTY NAMED			LEPHONE
Donald D. Metzger 2250 Finter  28 PROGRAM OF DRILLING CONVERTING REWORKING, CASING, CI (See appropriate instruction sheet Attach 3 copies of proposed program instruction sheet)		TING AND MONITO	RING.	773-3949
CASING PROGRAM:		INSTRUC	CTION SHEET	NÚ.
Size Depth Garnant		Type of Well	Drill-New	Rework*
Attachments		Brine	D-1	R-1
		Storage Disposal	D 2	R-1
- Environmental Impact Assessment		Solution Mining	0-4	R-2 X
- Drilling Program		Tast Well	D-5	R-1
- Completion Program		*Rework, Deepen,	or Convert to Na	ew Use
- Operation				
- Monitoring				
THERE WILL BE NO CHANGES IN THE PROGRAM THE SUPERVISOR OF MINERAL WE			AL OF	
R. J. Samelson. PPG Industries. Inc., One PPG	<u> Place, Pittsburgh, PA</u>	15272	1	1434-284]
MINERAL WELL SECTION USE ONLY	The Applicant agrees to c			
STATUS OF BOND	of Act 315, P.A. 1969, a application and attached re			on this
APPLICATION APPROVED BY	1			
PERMIT NUMBER	SIGNATURE (APPLICANT/AUTH	ORIZED REP.)	DATE	1 1 2
367 048-855-28867	KV Hune II	Du.	8/,	13/85
DATE ISSUED	NAME (TYPED)			ı
9/9/85	R. J. Samelson			
ISSUED BY Lavid H. Dechler	Manager Environmenta	al Programs		
DISTRIBUTION:	FOR CASHIER'S USE ONLY		R 75	000 2/73
Pink - Applicant			~	

#### SURVEY RECORD OF WELL LOCATION

(Submit five copies with Application for Permit to Drill a Well for Oil or Gas, Brine Disposal, Hydrocarbon Storage or Secondary Recovery)

84471 Billie Bisposali, Hydrocarbon Ga	orage or economy rises or right
LESSEE (OWNER OF LEASE RIGHTS) PPG INDUSTRIES, INC.	
LESSOR (OWNER OF MINERAL RIGHTS) Willmet, Inc.	(PPG 1042) WELL NO 1042
SW % OF NW % OF NW	% SECTION 26 T 17 N 8.9 W
TOWNSHIP	Osceola
Hersey  PLAT BELOW REPRESENTS ONE FULL SECTION (1 Mile Square)  N  650' SURFACE TO LOCATION  2219.13'  BOTTOM HOLE  SECTION 26	1. Outline drilling unit and spot well location on pla at left. Where drilling unit crosses section lines divide the plat into an east half and a west half OF a north half and a south half (which ever applies) Outline the unit and locate the well in two directions from NEAREST quarter section and unit lines.  2. Location of well in two directions from NEAREST quarter section and unit lines is:  SURFACE LOCATION  1049 ft. from North line of Quarter Section  650 ft from West line of Quarter Section  ft from line of unit line line of unit line line of unit line line of unit line line of unit line line line line line line line line
REVISION () ACTUAL DIMENSIONS BIBS	3. Describe wellsite marker Show or describe access route if it is not readily accessible.  Wellsite is marked with a painted wood stake. Access is from the West off 140th Avenue. See supplemental plat.
	Ground Elev. = 1146.7', U.S.G.S. datum.
(Scale of Plat — 1 inch equals 1320 ft.)	11111111111111111111111111111111111111
4 ON SEPARATE PLAT OR PLOT PLAN:  A Locate, identify, and show distances to all road structures within 300 feet of the stake;	JERRY OF MIC.  JERRY OF MIC.  JERRY OF MIC.  JERRY OF MIC.
B. Locate, identify, and show distances to all for surface water features within 1320 feet of the Standard Stan	akes, streams, swamps, drainage ways or any other
detailing plans for hazards prevention and erconstruction of an environmental impact assessment	osion control (See instructions and guidelines for
NAME OF INDIVIDUAL VIHO SURVEYED WELL SITE  Jerry L. Wilcox	x, LS#14102 10-23-84 President
J. L. WILCOX & ASSOCIATES, INC. 7230 North	h U.S131 Manton, MI 49663 ACCURATE TO THE BEST OF MY KNOWLEDGE AND BELIEF
DENATURE (LESSEE OR AUTHORIZED REPRESENTATIVE) ADDRESS IN	



## STATE OF MICHIGAN MINERAL WELL OPERATORS ENVIRONMENTAL IMPACT ASSESSMENT

#### Well Identification

Name of Applicant: PPG Industries, Inc.

Address: 2258 Enterprise Drive

Mt. Pleasant, Michigan 48858

\*Well Name and Number: PPG #1042

Location: SW1/4 of NW1/4 of NW 1/4

Section 26, T17N, R9W

Hersey Twp., Osceola County, Michigan

#### Description of Project

The PPG #1042 well was directionally drilled from a surface location 1049 feet from the North line and 650 feet from the West line of the Northwest 1/4 of Section 26, T17N, R9W, to a bottom hole location 1538.27 feet from the North line and 2279.13 feet from the West line of the same Northwest 1/4. The well was drilled to a total anticipated vertical depth of approximately 8000 feet. The surface and bottom hole are both located in the Northwest 1/4 of Section 26, T17N, R9W, Hersey Township, Osceola County, Michigan. This application is for a permit to convert Well #1042 from an exploratory well to a solution mining well. Surface and mineral rights for the entire Northwest 1/4 of Section 26 are owned in fee by PPG Industries, Inc. or under lease to PPG Industries, Inc.

This well is for the purpose of testing the solution mining technology for the production of potash bearing brines. This area has already been cleared and leveled for purposes of drilling exploratory mineral wells. The land surrounding the wellsite is rolling, open, dormant field. Land use in the surrounding area is mixed agricultural and forest recreational. Natural topography at the site had been a ridge and drainage is both Northwest and Northeast. The drainage to the Northwest is toward Polick Creek while that to the Northeast is toward Bull Hill Creek. Both creeks are over 1/4 mile away and are part of the Muskegon River watershed. There are no lakes, swamps or principal streams within 1/4 mile.

Access to the location will be from the West off 140th Avenue and utilizes the existing service road. One Hundred Fortieth Avenue is a gravel surfaced county road located along the West line of Section 26.

<sup>\*</sup> Permit to Drill No. 048-841-367

#### II. Environmental Impact Assessment

The drilling of the wells at this location should have only a minor effect on the ecological system of the vicinity. Wildlife is abundant throughout the region, but no special or endangered species are known to exist in the vicinity of the proposed project. The proposed project should have only a slight effect on future population patterns.

The proposed project is intended for solution mining testing. Seven inch production casing will be set to the A-1 Evaporite and cemented back to surface.

No significant disruption to the environment will result since the drilling area is that previously cleared and paved for those wells which have already been drilled. A drilling pad area of approximately 1-1/4 acres has been prepared for drilling all the wells. Extensive tree removal was not necessary to clear the drilling pad. Because of the relatively large area included in the project, a slight amount of earthwork was needed to level the entire area. A Soil Erosion and Sedimentation Permit was acquired from Osceola County. Appropriate drillsite drainage and sedimentation control measures have been incorporated in the operational plan. Side slopes have been graded and are being seeded for stabilization. An asphalt pad has been laid in a 360' x 140' area around the drilled well and planned adjacent wells. This pad is sloped to provide drainage to the sealed cellar, which is routinely evacuated with a vacuum truck.

A mud pit system will not be required since this is an existing well and will also not be required for reworking/conversion purposes.

Access to the wellsite will be from the West off 140th Avenue and utilizes the existing service road. No new road will need to be constructed.

Since no hydrogen sulfide gas was encountered during the drilling, and since casing has been set, the possibility of encountering this material during rework/conversion operations can be ruled out.

Upon completion of solution mining operations, the well will be plugged in accordance with Michigan's Department of Natural Resource's instructions prior to abandonment. This project is expected to have only a slight effect on the immediate environment.

#### III. Possible Alternative to the Proposed Well Location

The proposed bottom hole location has been selected on the basis of a geologic interpretation. The surface location has been chosen on the basis of an extensive on-site evaluation. By drilling this well from a common drilling pad with others, a minimum disruption of the environment will result. The proposed project area is well isolated from surface waters and human habitation. We believe the site is generally well suited for the undertaking of this project and that adequate protection of the environment can be maintained at this location. For these reasons, we believe that drilling the well from the surface location proposed is the best available alternative.

#### IV. Any Irreversible and Irretrievable Commitment of Resources

The proposed project should not require a significant commitment of natural resources. The productivity of the land utilized for the drilling pad and access road will be lost during the life of the project, but the surface resources of the drillsite will not be irreversibly committed. Drilling of the well will not curtail the use of the surrounding environment.

#### V. Summary

order to minimize surface disturbances, this well has directionally drilled from a common surface location which has been used for other wells in this 1/4 Section. The drilling pad area necessary for this project is approximately 1-1/4 acres. The drilling pad is located on rolling, generally open, dormant land. Land use in the surrounding area is mixed agricultural and forest recreational. Natural drainage from the locations is both Northeasterly and Northwesterly toward tributaries of the Muskegon River. There are no surface waters within 1/4 mile of the proposed wellsite. Appropriate drillsite drainage and sedimentation control measures have been included in the operational We do not anticipate sour gas at this location. the wellsite is from the West off 140th Avenue and utilizes the existing service road. We consider the environmental impact of this project to be minimal, and will make every effort to ensure protection and preservation of the environment during the course of our drilling and testing operations

Applicant's Representative

Comments by Department of Natural Resources Representative:

Authorized Representative

#### Section 28 Solution Mining Well Program

#### I. Drilling Program

- A. Well No. PPG No. 1042 was drilled as follows:
  - 1. Ninety-five feet of conductor pipe was driven. This would allow for the landing of a 20" conductor should washout below the 24" conductor pipe occur while drilling through the glacial drift.
  - 2. A 17-1/2" hole was drilled to a firm footing as determined by geologists from samples.
  - 3. A 13-3/8" S.T.C. 54.5# K-55 buttress casing equipped with Texas pattern weld-on shoe was run. A float collar was set one joint, off bottom. The lower 5 joints of casing were strapped across the collars in two or three sectors. Top and bottom cement plugs were run with no centralizer. See attached Exhibit "A" for additional detail.
  - 4. A cement basket was run approximately 50' below surface to make sure that the cement would circulate back to surface.
  - 5. A 12-1/4" hole was drilled to 5260'. Directional drilling was employed as per the attached Exhibit "B". Exhibit "C" shows the bottom hole location relative to the surface location. Directional surveys were run as required. Geophysical logs were run from the base of the surface casing to the intermediate casing point. These logs include those which provide information on lithology, porosity, and fluid characteristics.

A 9-5/8" I.T.C. 40# and 43 1/2# N-80 grade pipe was landed with a guide shoe on bottom and float collar at the first joint above, and the bottom six joints were secured with Weld-A. A stage collarwas set at approximately 3400' from surface. Centralizers were run. The lower joints of casing were roughened to provide a better cement bond. See Exhibit "D" for additional details.

Pressure tests were completed after the intermediate casing had been run and after the blowout preventor equipment was installed on the 9 5/8" casing. The tests were run before the cement plugs were drilled out. The BOPE system was pressure tested for leaks, using the rig pump, to a pressure of 500-800 psi.

- 6. An 8-1/2" hole was then drilled from the base of the intermediate casing to 7920'. The drill pipe was removed from the hole and a complete pressure check of the blowout preventors and casing was run. The BOPE system is pressure checked to 5000 psig, the Hydril to 2500 psig and the Intermediate Casing to 80% of burst pressure. This was done as a precautionary measure in the event of encountering  $H_2S$  Gas in the A-2 and/or A-1 Carbonate. At this stage a full  $H_2S$  monitoring system was also installed on the rig.
- 7. Drilling continued into the top of the A-1 Evaporite, at which time a core barrel was picked up. A 4" core was then cut through the salt and potash beds of interest. The hole was then reamed with an 8-1/2" bit and deepened to the top of the Niagaran formation. Bottom hole location was verified by running a gyro survey. Monitoring for gas continued to total depth.
- 8. The core was then processed by PPG laboratory personnel.

#### B. Drilling Fluid

Drilling through the glacial drift was accomplished with chlorinated fresh water mud in steel working pits with solids control equipment. The cuttings were discharged to the asphalt lined disposal area and the fluid hauled to a disposal well. The hole from the base of the surface casing to the Detroit River Salt, was drilled with fresh water using steel working pits. Mud system volume was maintained by fresh water makeup and solids content was controlled by solids removal equipment. The solids were discharged into the asphalt lined disposal The drilling fluid becomes saturated with NaCl while drilling through the salt sections. Saturated brine is then used to maintain Solids were removed by the solids control mud system volume. equipment and discharged into the asphalt lined disposal area. The 8-1/2" hole drilled from the base of the intermediate casing to the top of the A-2 Evaporite utilizes the brine-based mud system generated during drilling of the well to intermediate casing point. Saturated brine makeup was used. After encountering the A-2 Evaporite, the brine mud system was displaced from the hole into steel holding tanks and replaced by a polymix-NaCl saturated mud system which contains Mud system properties were maintained at low water loss, and at a desired viscosity, yield and weight. This mud system is used to drill to total depth. This mud system was then displaced back into steel holding tanks for use in drilling of another well. Excess fluid generated during drilling was disposed in a disposal well.

#### C. Safety Equipment

Attached as Exhibits "E" and "F" are the blowout control systems used for drilling to intermediate casing point and to total depth, respectively. Monitoring of  $\rm H_2S$  in the circulating drilling mud system is accomplished on a 24-hour basis by mud logging equipment. The additional  $\rm H_2S$  monitoring equipment, mentioned above, augments this system.

#### II. Completion Program

#### A. Casing and Tubing

HoT	le	Casing					
Depth Bit Dia.		O.D. Size	Wt./FtGrade-	Depth			
95' 95-920' 920-5260' 5260-7920'	Drive 17-1/2" 12-1/4" 8-1/2"	24" 13-3/8" 9-5/8" 7"	0.412" Wall 48.0# H-40 40.0# N-80 17.0# N-80	New New New New	95 ' 920 ' 5260 ' 7890 '		

#### B. Down Hole Equipment

The 7" casing will be run in an 8-1/2" hole and set to approximately 7890'.

- 1. Use a guide shoe on bottom with manual fill float collar located one joint above the shoe. The guide shoe and float collar are locked on with Baker Lok or some similar material.
- 2. Run the centralizer into the middle of the first joint. The centralizer is held in place with a stop ring. The float shoe is centralized. Additional centralizers are run into the hole at points of high angle.
- 3. A short or marker joint is installed approximately 5-6 joints off bottom.
- 4. The mud system in the hole is circulated when the pipe is on bottom.
- 5. The casing is reciprocated while circulating and cementing. Reciprocation is stopped just prior to bumping the top plug.
- 6. A bottom (red) wiper plug is run, except if L.C.M. materials are being carried in the cement.

#### C. Cement

The 7" casing is cemented as follows:

 The well is plugged with cement up into the A-1 Salt to a point below where the 7" casing is to be landed.

- 2. Thirty barrels of fresh water were pumped ahead of the cement.
- 3. The cement volume, determined by calculating hole volume from the caliper log, required to bring the cement to surface was calculated. Single stage cementing was used, as recommended by the cementing company. Cementing was accomplished with:

1010 sacks regular poz., salt saturated 235 sacks Class A, 5% KCL, 1% HALAD 322

#### D. Geophysical Logging

In addition to the logs run at intermediate casing point, gamma ray, neutron and other lithology indicating logs are run from the base of the intermediate casing to the top of the Niagaran formation. Later, when the cement plugs are drilled out to below the zone of mineralization, a series of cased hole-logs will be run. A cement bond log and collar locator will be run from total depth to surface. The depth of the casing is checked using a collar locator log to locate the marker joint.

#### E. Tests

The pressure testing of the 7" casing to 80% of burst pressure will take place prior to the initial mining. This pressure exceeds 133% of operating pressure. A packer will run to the bottom and the pressure checked in the final stages before mining commences.

#### F. Mining Interval

Mining will be commenced in the salt a short distance above the bottom of the 7" casing. The exact depth depends on the depth at which the potash bed is encountered.

#### G. Well Area

The wellhead will be within a concrete trench sump which will gravity drain through a steel pipe to another sump within a building in which pumps and other equipment will be located. Accumulation of any leakage in this sump will be pumped back into the circulating solution mining fluid.

#### III. Operation

#### A. Well Operation:

#### 1. Single Well Operation

a) Well No. 1042 will be operated initially as a single well with annulus injection and tubing withdrawal. Oil will be used as an inert pad to provide roof control and will be added as required. The well will be operated as a single well until the mined out cavity is large enough to connect with Well No. 1041. The well will then be converted to multi-well operation.

#### 2. Multi-Well Operation

a) After Well Nos. 1041 & 1042 are connected, the wells will be operated as two well gallery. Either well may be operated as an injection or withdrawal well in the multi-well mode. Oil will continue to be used as required to provide roof control.

#### B. Operating Parameters

- 1. Injection flow will vary according to the stage that the cavity is in and the plant production requirements. During single well operation the injection flow will average less than 50 gpm. In multi-well operation the gallery flowrate will average as low as 75 gpm during certain stages and as high as 390 gpm during other stages. The gallery well may operate as high as 500 gpm for a short period of time.
- 2. Withdrawal flow will be approximately 97% of injection. No losses are anticipated to the formation.
- 3. Injection temperature will range from 50°F to 175°F.
- 4. Injection pressure will depend on the injection flowrate and the density difference of the injection and withdrawal fluids. It is anticipated that the injection pressure will range between 900 and 1545 psig.
- 5. Specific gravity of the withdrawal fluid will range between 1.2 and 1.25.
- 6. Chemical composition of the withdrawal fluid will depend on the ore being dissolved and is anticipated to range from nearly pure water to an aqueous solution of sodium chloride (NaCl) and potassium chloride (KCl) containing up to 435 gpl combined dissolved NaCl and KCl.
- 7. The injected fluids will be pretreated to reduce the dissolved oxygen concentration to less than 10 ppb for corrosion control purposes. Catalyzed Sodium sulfite or other commercially available chemicals will be used to scavenge the oxygen.

#### IV. Monitoring

#### A. Operating Parameters

The injection flowrate to each well will be continuously monitored by a totalizing flowmeter. The withdrawal flow from all wells will be combined and monitored with a continuous, totalizing meter. The chemical analysis of injection fluids and the withdrawal fluid from each individual well will be used along with the flowrates to determine a material balance on each well or gallery well.

- B. Well Integrity and Solutioning Process.
  - 1. The well head and surface equipment will be visually monitored by operations.
  - 2. The condition of the borehole, casing, and cement sheath will be determined by monitoring the pressure when the well is operating. If any loss of fluid (other than expansion of the cavity) is indicated from a comparison of the injection and withdrawal flowmeters, pressure and/or video testing of the casing will be performed to locate leaks.

#### C. Surface Changes.

A network of benchmark monuments is being installed for the purpose of monitoring surface changes in the solution mining area. Baseline vertical control will be established before any solution mining is performed. The network includes monuments within an area covering approximately 7.5 square miles in and around the solution mining area, as well as several monuments located outside the intended mining area, which serve as reference benchmarks. Annual surveys will be conducted during the solution mining operation to ascertain any elevation changes on the surface. Reports will be mailed to DNR every two years.

#### Exhibit A

#### Surface Casing (13-3/8" in 17-1/2" hole @ 920')

- Use insert float and Texas Pattern Shoe and lock to shoe joint with thread lock.
- 2. No centralizers.
- 3. Circulate hole a minimum of one complete circulation.
- 4. Do not reciprocate casing.
- 5. Run bottom (red) wiper plug. Do not use if carrying L.C.M. in cement.
- 6. Pump 70 bbls. fresh water ahead of cement.
- 7. Cement with:
  - a. 550 sacks HOWCO Lite, 3% CaCl
  - b. 200 sacks Class A, 3% CaCl

EKJG13/JG/1mk

#### Exhibit D

#### Intermediate Casing (9-5/8" in 12-1/4" hole @ 5260')

- 1. Use float collar and guide shoe and lock to shoe joint with Halliburton Weld-A.
- 2. Run one centralizer 10' above guide shoe and four more at every other collar spacing.
- 3. Circulate hole a minimum of one complete circulation and until the drag stabilizes.
- 4. Reciprocate casing while circulating and cementing. Stop reciprocation just prior to bumping to plug.
- 5. Run bottom (red) wiper plug. Do not use if carrying L.C.M. in cement.
- 6. Pump 30 bbls. fresh water ahead of cement.
- 7. Cement with enough cement from caliper log to bring cement to surface on all intermediate casing strings.
- 8. Run top (black) wiper plug.
- 9. Displace with fresh water.

## STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES GEOLOGICAL SURVEY DIVISION

#### MINERAL WELL COMPLETION REPORT TO BE FILED WITH THE SUPERVISOR WITHIN 60 DAYS AFTER COMPLETION OF WELL (ACT 315. P.A. 1969)

SUBMIT IN TRIPLICATE

NAME OF OWNER OR OPERATOR			ADDRESS OF OWNER OR OPERATOR									
PPG OIL & GAS, INC.			2258	Enterprise	Drive							
						Mt.	Pleasant, M	II 48858	8			
NAME OF ORILLING	CONTRA	стоя				ADDRE	ESS OF DRILLIN	G CONTRA	CTOR	<u> </u>		
INDRIL, INC.						PO B	ox 668					
						Mt.,	Pleasant, M	(I 4885	8			
WELL NAME PPG					WELL NUMBER PERMIT NUMBER 1042 048-841-367							
LOCATION						SECTIO	SECTION TWP			RANGE		
SW14 NW14 NW14						26 17N			9W			
TOWNSHIP						COUNTY						
Hersey						0sce	01a					SANGER
104		Ft from	N o			650	Ft from	Εo		Line of	quart	ter section
DATE DRILLING CON 01/20/85	MENCED	1	DATE DRIL 02/2		COMPLETED	1	WELL COMPLET	ED	•	E OF WELL	4 4	
FORMATION COMPL						02/2			├	5 test we	; T T	
Niagaran	ETED IN		rotal def 116 Dr;		log;	ELEVATI	1162.1	RB	RT	1160	.7	IN 1145.6
ROTARY TOOLS				7920	PBTD	CABLE	TOOLS					
From 0		Feet t	o TD		Feet	Fron	<u>n</u>	Fe	et to			Feet
			_		WELL CASIN	NG RECO	ORD					
TUBING A	ND CASIN	G DAT	A		CEMENTI	NG DATA	,	PER	FORA	TIONS OR O	PEN	HOLE
SIZE LB./FT.			DEPTH		CKS TYPE		NG DEPTH(S)	NO. HOL	ES	FROM	_	то
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7" 23#	L-8	0			sx poz, 235	1		A			-	
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FORMATION	FROM	то	AMOU	NΥ	SERVICE CON	ΛΡΑΝΥ	TYPE LOG	IN	TERV	AL LOGGED	T	COPY TO SURVEY
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FRACTURE	OR ACII	D TRE	ATMENT				SOLUTI	ON MININ	G			
DATE	FROM	то	QUANT	ITY	NAME AND	NUMBER	OF INJECTION	AND TARG	ET W	ELL - DISTA	NCE	APART
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GIVE COMPLETE FORMATION RECORD ON REVERSE SIDE

#### FORMATION RECORD

(ATTACH ADDITIONAL SHEETS IF NECESSARY)

ELEVATION KB	USED:	GEOLOGIST NAME:			SAMPLE LOG ELECTRIC LOG
		FORMATION			FORMATION
FROM	то	(TYPE, COLOR, ETC.)	FROM	то	(TYPE, COLOR, ETC.)
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			110 415 445 0		
			DATE OF C	OMPLETION	

PPG OIL & GAS, INC.
PPG #1042
SW NW NW, Section 26, T17N R9W
Hersey Township, Osceola County, MI

### (All tops Schlumberger)

	Base of Drift @ 616
616 - 670	Shale, red-gray, gummy soft.
670 - 844	Shale, gray to red, gummy; with sandstone, light gray, subround.
844 - 913	Sandstone, light gray, buff, fine grained, rounded to sub-rounded, poorly cemented.
913 - 1006	Shale, medium to dark gray, blocky, firm.
	Kicked off @ 1000'
1006 - 1390	Sandstone, light gray, subangular, moderately well cemented; with shale, medium gray, firm; trace limestone.
	<u>Triple Gyp @ 1390</u>
1390 - 1462	Anhydrite, white, firm; with shale, medium to dark gray, firm.
	Brown Lime @ 1462
1462 - 1578	Limestone, medium to dark brown, very finely crystalline, slightly sucrosic; with shale, medium to dark gray.
	Stray Sandstone @ 1578
1578 - 1714	Sandstone, white, very finely crystalline, subangular, calcareous cement, becoming red.
	Marshall @ 1714
1714 - 1844	Sandstone, white to transparent, very fine grained, sub- angular to subround, moderately well cemented; with shale, medium gray to dark gray, firm, non-calcareous.
	Coldwater Shale @ 1844
1844 - 2580	Shale, gray to gray-blue, firm, slightly calcareous.
	Sumbury @ 2580
2580 - 2676	Shale, very dark brown to black, trace pyrite, trace spore cases, firm.

PPG OIL & GAS, INC. PPG #1042 SW NW NW, Section 26, I17N R9W Hersey Township, Osceola County, MI

Page 2

	Ellsworth @ 2676
2676 - 3082	Shale, dark to medium gray to gray-green, soft to firm.
	<u>Antrim @ 3082</u>
3082 - 3254	Shale, dark brown to black, firm, very slightly calcareous, very organic.
	Iraverse Formation @ 3254
3254 - 3301	Shale, dark gray to brownish-black, firm, pyritic; inter- bedded with limestone, brown to tan, very finely crystalline.
	Traverse Limestone @ 3301
3301 - 3824	Limestone, creme to tan, brown to dark brown toward base, very fine to finely crystalline, compact, trace intercrystalline porosity, no fluorescence or stain, argillaceous toward base.
	Bell Shale @ 3824
3824 - 3882	Shale, gray, light gray, soft, non-calcareous.
	<u>Dundee @ 3882</u>
3882 - 3942	Limestone, light to medium brown, tan, microcrystalline, tight, compact, argillaceous, no visible porosity.
3942 <b>-</b> 3952	Dolomite, medium brown, some light brown to buff, finely to very finely crystalline, slightly argillaceous, trace stain, no fluorescence or cut, 5-7% porosity average.
	Reed City Anhydrite @ 3952
3952 - 3960	Anhydrite, white, firm.
	Reed City Dolomite @ 3960
3960 - 3990	Dolomite, tan to light brown to medium brown, very finely crystalline, trace sucrosic texture, 7-11% porosity, very slightly argillaceous, no fluorescence, stain or cut.
3990 - 4040	Dolomite, medium to light brown, trace dark brown, 7-9%+ porosity, lighter portion very clean, no fluorescence or cut, good sucrosic porosity.

PPG OIL & GAS, INC. PPG #1042 SW NW NW, Section 26, I17N R9W Hersey Township, Osceola County, MI					
Page 3					
4040 - 4120	Dolomite, medium brown, trace light brown, carbonaceous stain, 6% porosity, very finely crystalline, slight trace sucrosic texture, argillaceous.				
	Detroit River Anhydrite @ 4120				
4120 - 4562	Anhydrite, white, firm.				
	Detroit River Salt @ 4562				
4562 - 4591	Salt, with dolomite, light brown to brown, very fine to finely crystalline, argillaceous, very compact; with anhydrite.				
	Sour Zone @ 4591				
4591 - 4720	Dolomite, light to medium brown, tan, very finely crystalline to microcrystalline, compact, 3-6% intercrystalline porosity.				
	Massive Anhydrite @ 4720				
4720 - 4952	Anhydrite, white, firm; dolomite, tan to brown, micro-crystalline, trace stain and fluorescence, no cut.				
	Base Anhydrite @ 4952				
4952 - 5028	Dolomite, light to medium brown, trace gray, very finely crystalline to microcrystalline, tight, no stain or fluorescence.				
	Black Limestone @ 5028				
5028 - 5138	Limestone, dark brown to black to tan to buff, finely crystalline, trace intercrystalline porosity, argillaceous, wackstone, no stain or fluorescence.				
	Sylvania @ 5138				
5138 - 5254	Sandstone, light brown to buff, fine grained, well cemented, subround, calcareous cement; with abundant limestone, tan to brown.				
	Bois Blanc @ 5254				
5254 - 5412	Limestone, tan to gray-brown, very fine to finely crystalline, good porosity in part; with dolomite, dark gray to gray, microcrystalline; trace chert.				

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PPG OIL & GAS, INC.
PPG #1042
SW NW NW, Section 26, T17N R9W
Hersey Township, Osceola County, MI
Page 4
                Bass Islands @ 5412
5412 - 5708
                Dolomite, gray-brown to light brown, no stain or fluorescence;
                trace anhydrite, white.
                Salina @ 5708
                Dolomite, gray-brown to dark brown, microcrystalline, compact,
5708 - 5718
                argillaceous.
                F Unit @ 5718
5718 - 5760
                Dolomite, dark brown, gray, very finely crystalline, compact,
                argillaceous.
                F Salt @ 5760
5760 - 6320
                Salt, with shale, gray, soft.
                E Unit @ 6320
6320 - 6442
                Shale, medium gray, calcareous, firm, trace intercrystalline
                porosity, moderately argillaceous; with dolomite, gray-brown.
                D Salt @ 6442
6442 - 6482
                Salt.
                C Shale @ 6482
6482 - 6575
                Shale, light to medium gray, trace red; dolomite, light to
                medium brown to red-brown, very finely to microcrystalline.
                B Salt @ 6575
6575 - 6950
                Salt, massive.
                A-2 Carbonate @ 6950
6950 - 7090
                Limestone, medium to light brown to gray-brown to dark brown,
                microcrystalline, tight, argillaceous; with dolomite, medium
                to light brown, very finely to microcrystalline.
                A-2 Evaporite @ 7090
7090 - 7445
                Salt, massive.
```

PPG OIL & GAS, INC.
PPG #1042
SW NW NW, Section 26, T17N R9W
Hersey Township, Osceola County, MI

Page 5

7445 - 7502 Dolomite, dark to very dark brown, very finely to micro-crystalline, argillaceous, tight; limestone, medium to dark brown.

#### A-1 Evaporite @ 7502

7502 - 7818 Salt, massive; no anhydrite.

#### Niagaran @ 7818

7818 - 7830 Limestone, medium to dark brown, medium gray, very finely to microcrystalline, argillaceous, tight, dense, no stain or fluorescence; trace of microlaminations.

PRINT OR TYPE INFORMATION SEE INSTRUCTION SHEET R 7500-1 BEFORE FILLING OUT APPLICATION

STATE OF MICHIGAN
DEPARTMENT OF NATURAL RESOURCES
GEOLOGICAL SURVEY DIVISION

#### APPLICATION FOR A MINERAL WELL PERMIT

To Drill, Operate, Convert, or Rework a Brine, Storage, Disposal, or Test Well

1 DATE OF APPLICATION 2 FEE ENCLOSED 12-13-84 \$1.00 3. APPLICATION TO Drill 5. WELL DESIGNATION 4. TYPE MINERAL WELL D-5 (Test Well) PPG 1042 6 LOCATION: SW/4 of the B 9₩ NW/4 of the NW 14 SEC 26 T 17N 7. TOWNSHIP 8 COUNTY Hersey Osceola

By Authority of Act 315, P A 1969

		1101 303		<u> </u>	
PPG Industries, Inc.		_			10. TELEPHONE 517 <b>-</b> 773-3949
11 ADDRESS (Street, City, State)	_				12 ZIP CODE
2258 Enterprise Drive, Mt. Pleasar	nt, MI 488	358			48858
13 SURETY OR SECURITY COMPANY		14. TYPE		15 AMOUNT	16 BOND NO
Hartford Accident & Indemnity Co.		SINGLE	X BLANKET	\$25,000.00	4512254
17 OWNER OR SURFACE RIGHTS		18 OWNER OR MINE	RAL RIGHTS	_	
Willmet, Inc.		Willmet, Ir	nc		
19 DRILLING CONTRACTOR	20 ADDRESS	_			21 TELEPHONE
INDRIL, Inc.	P.O. Box	642, Mt. Pleas	nt, MI 488	58	517-773-6946
22 TYPE DRILLING TOOLS	23 FORMATIO	ON			24 INTENDED
CABLE XX ROTARY COMBINATION	Niagaran				8,000'
25. PROJECT ENGINEER OR GEOLOGIST	26 ADDRESS			A Company	27. TELEPHONE
D. D. Metzger		<u>rprise Drive, M</u>			517-773-3949
28 PROGRAM OF DRILLING, CONVERTING REWORKS	NG, CASING, CE	MENTING, COMPLETIN	G OPERATING,	AND MONITORING.	

(See appropriate instruction sheet. Attach 3 copies of proposed program — including but not necessarily limited to information requested in the

instruction sheet)

CASING PROGRAM: Depth Size

Cement

Exhibits 1, 2, & 3 Enclosed

INSTRUCTION SHEET NO.					
Type of Well	Drill-New	Rework*			
Brine	D-1	H-1			
Storage	D-2	R-1			
Disposal	D-3	뭐-1			
Solution Mining	D-4	R-2			
Test Well_	D-5 X	R-1			
i est well D-5 V H-1					

30. TELEPHONE

517-773-3949

\*Rework, Deepen, or Canvert to New Use

THERE WILL BE NO CHANGES IN THE PROGRAM OUTLINED IN THIS APPLICATION WITHOUT APPROVAL OF THE SUPERVISOR OF MINERAL WELLS UR HIS AUTHORIZED REPRESENTATIVE. 29. ADDRESS CORRESPONDENCE AND PERMIT TO:

PPG Industries, Inc., 2258 Enterprise Drive, Mt. Pleasant, MI 48858

MINERAL WELL SECTION USE ONLY	The Applicant agrees to comply with provisio of Act 315, P.A. 1969, and asserts that the	-	
STATUS OF BOND	application and attached report is true and correct.		
APPLICATION APPROVED BY	SIGNATURE (APPLICANT/AUTHORIZED REP)	DATE	
PERMIT NUMBER 048-, 841-367	Daniel	12-13-84	
12/28/84	Donald P. Smith		
ISSUED BY Conch	Exploration Engineer		
DISTRIBUTION: White - Lansing Canary - Field Prints - Applicant COSI 1 00	FOR CASHIER'S USE ONLY	R 7500 2/73	



PPG Industries, Inc. 2258 Enterprise Drive Mt. Pleasant, Michigan 48858 (517) 773-3949

December 13, 1984

Mr. Al Rarick Department of Natural Resources Geological Survey Division P. O. Box 30028 Lansing, MI 48909

Dear Mr. Rarick:

Re: PPG Industries, Inc. Standard Casing and Cementing Procedures

Listed below are PPG Industries, Inc. standard casing and cementing procedures:

- 1. Drive 24" pipe as deep as possible. This allows us to set 20" conductor inside and lower if trouble occurs with washout under conductor pipe while drilling surface hole.
- 2. Drill 17 1/2" hole to base of drift or to a firm footing as determined by geologist from samples.
- 3. Run 13 3/8" S.T.C. 48# Seamless H-40 casing equipped with Texas pattern weld on shoe. A float collar is set 30', or one joint, off bottom. The lower 5 joints of casing are strapped across collar in either two or three sectors. Top and bottom cement plugs with no centralizer as recommended by cementing company (see attached).
- 4. We also run a cement basket approximately 50' below surface, making sure cement is circulated back to surface.
- 5. We then drill 12 1/4" hole into Bass Islands formation or the Amherstburg if local drilling shows no lost circulation zones in the Bois Blanc and set 9 5/8" L.T.C. 40# N-80 grade pipe with a guide shoe on bottom with float collar first joint up and all bottom 6 joints secured with Weld-A or Baker Lok or some similar material.
- 6. Centralizers are run per cementer's recommendation attached.
- 7. For both the surface and intermediate casings, the lower joints of casing are roughened unless they appear rusty as this provides a much better bond for cement.

Sincerely,

Donald P. Smith Exploration Engineer

DPS/blb Attachment

#### Surface Casing (13 3/8" in 17 1/2" hole @ 750')

- A. Use insert float and Texas Pattern Shoe and lock to shoe joint with thread lock.
- B. No centralizers
- C. Circulate hole a minimum of one complete circulation
- D. Do not reciprocate casing
- E. Run bottom (red) wiper plug. Do not use if carrying LCM in cement.
- F. Pump 70 bbls. fresh water ahead of cement
- G. Cement with:
  - 1. 475 sx 50/50 Poz., 6% total gel, 3% CaCl<sub>2</sub> 1.54ft<sup>3</sup>/sk, 13.3#/gal, 7.66 gals/sk
  - 200 sx Class "A", 3% CaCl<sub>2</sub>
     1.18 ft<sup>3</sup>/sk, 15.6#/gal, 7.66 gals/sk

Intermediate Casing (9 5/8" in 12 1/4" hole @ 5100')

#### Recommended Procedure:

- A. Use float collar and guide shoe and lock to shoe joint with Halliburton  $\operatorname{Weld-A}$
- B. Run one centralizer 10' above guide shoe and four more at every other collar spacing.
- C. Circulate hole a minimum of one complete circulation and until the drag stabilizes.
- D. Reciprocate casing while circulating and cementing. Stop reciprocation just prior to bumping top plug.
- E. Run bottom (red) wiper plug. Do not use if carrying LCM in cement.
- F. Pump 30 bbls. fresh water ahead of cement.
- G. Cement with enough cement from caliper log to bring cement to surface on all intermediate casing strings.
- H. Run top (black) wiper plug.
- Displace with fresh water.

Casing Equipment: (9 5/8")

Regular guide shoe, float collar with auto fill, Halliburton weld-A (2), Centralizers (5)

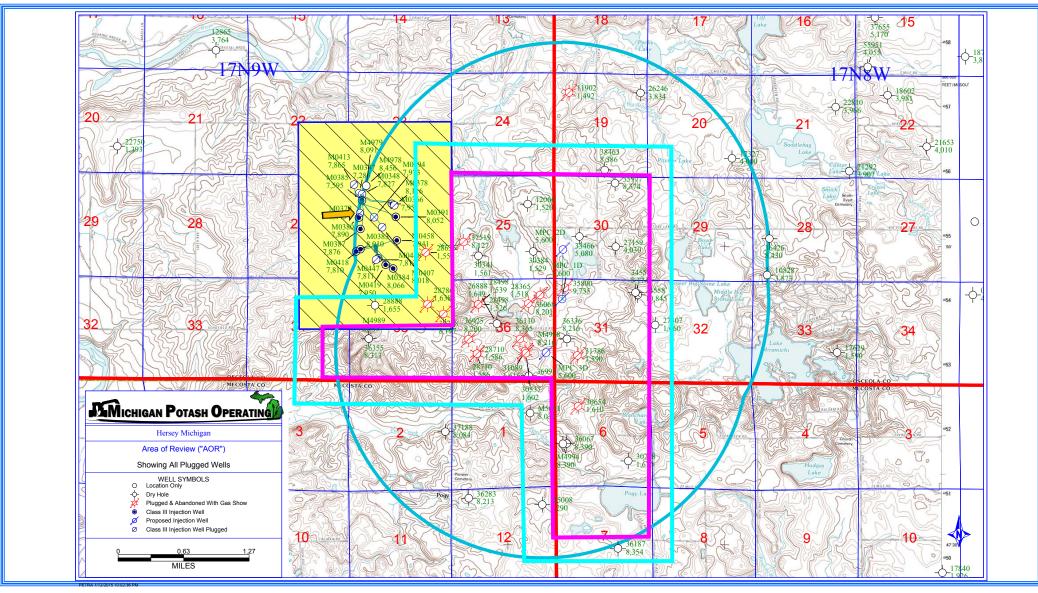
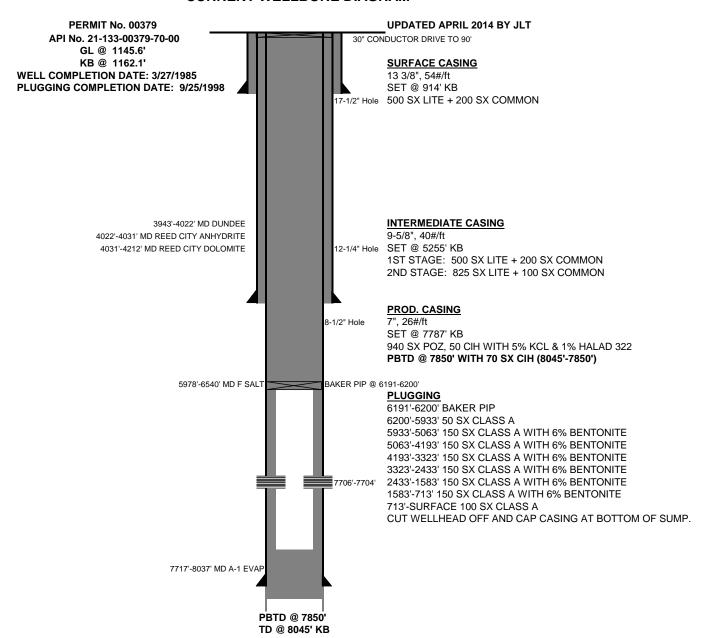


Figure B4. Map showing all plugged wells, shallow (that do not penetrate any confining horizon) or deep (that penetrate confining horzion) within the area of review. Total Depths are listed. There are several shallow Michigan Stray wells that do not penetrate the injection or confining horizon.

#### **KALIUM 1052**

## SW NW NW Sec 26 T17N R9W OSCEOLA COUNTY, MI

#### **CURRENT WELLBORE DIAGRAM**



#### **KALIUM 1052 WELL HISTORY**

DATE DESCRIPTION

3/1/1985 SPUD.

3/26/1985 DRILLING COMPLETED.

13 3/8" SET AT 914'; 500 SX LITE + 200 SX COMMON

9 5/8" SET AT 5255'; 1ST STAGE: 500 SX LITE + 200 SX COMMON; 2ND STAGE: 825 SX LITE + 100 SX COMMON

7" SET AT 7787'; 940 SX POZ, 50 CIH WITH 5% KCL & 1% HALAD 322

PBTD @ 7850' WITH 70 SX CIH (8045'-7850')

3/27/1985 WELL COMPLETED.

9/25/1998 PLUGGING START DATE 7/28/1998 RECOVER 243' 7" CASING

7/29/1998 INSTALL BAKER PIP PACKER. CUT 7" CASING 1275' AND 706' TO RECOVER 7". NO RECOVERY

9/29/1998 CUT 7" CASING AT 478'. TRY TO REMOVE CASING - NO RECOVERY. RUN 6201 OF 2-7/8" CEMENT STRING.

CIRCULATE HOLE CLEAN. RUN CEMENT PLUGS AND CAP OFF WELL.

6191'-6200' BAKER PIP 6200'-5933' 50 SX CLASS A

5933'-5063' 150 SX CLASS A WITH 6% BENTONITE 5063'-4193' 150 SX CLASS A WITH 6% BENTONITE 4193'-3323' 150 SX CLASS A WITH 6% BENTONITE 3323'-2433' 150 SX CLASS A WITH 6% BENTONITE 2433'-1583' 150 SX CLASS A WITH 6% BENTONITE 1583'-713' 150 SX CLASS A WITH 6% BENTONITE

713'-SURFACE 100 SX CLASS A

CUT WELLHEAD OFF AND CAP CASING AT BOTTOM OF SUMP.

RAY V.

## AND ADDRESS OF PERMITTEE    NAME AND ADDRESS OF CONTRACTOR   OCT 2 0 19 98		_	UNITED		RONMENTAL HINGTON, DC		AGENCY	RECEIV	
MC Kalium, Ltd 335 135th Avenue  Hersey, MI 49639  COATE WELL AND OUTLINE UNIT ON STATE  COUNTY  SECTION PLAT - 640 ACRES  MI Oscocla  MI-133-33-GA002  SURFACE LOCATION DESCRIPTION  SURFACE LOCATION DESCRIPTION  SURFACE LOCATION DESCRIPTION  SURFACE LOCATION OF MILLY of J. 14 of Section_26 Township17N Range9W  Locate well in two directions from nearest lines of quarter section and drilling unit  SURFACE LOCATION DESCRIPTION  SURFACE LOCATION DESCRIPTION  SURFACE LOCATION OF MILLY of J. 14 of Section_26 Township17N Range9W  Locate well in two directions from nearest lines of quarter section and drilling unit  WELL ACTIVITY  Brine Disposal  Enhanced Recovery  Hydrocarbon Storage  Lease Name  Kalium Hersey  WELL CASING RECORD - BEFORE REWORK  Casing  Cement  Perforations  WELL CASING RECORD - BEFORE REWORK  Treatment Record  133-8 914 700  LITE/A  9 5/8 5255 1625  LITE/A  7 77745 1060 PREMIUM  WELL CASING RECORD - AFTER REWORK (Indicate Additions and Changes Only)  Casing  Cement  WELL CASING RECORD - PREMIUM  Describe rework operations in detail  Use additional sheets if necessary  Log Types  Logged Intervats  Logged Intervats  Well Treatment Record  Treatment Record  Treatment Record  Treatment Record  Treatment Record  Treatment Record  Treatment Record  Treatment Record  Treatment Record  Treatment Record  Treatment Record  Treatment	EPA				•				
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Locate well in two directions from nearest lines of quarter section and drilling unit    V	[ <del></del> ]			1			Section 26 Toy	unchin17N BangaOW	
and 650 ft. from (EW) W line of quarter section  WELL ACTIVITY  Brine Disposal Enhanced Recovery Hydrocarbon Storage Lease Name Lease Name Railum Hersey Date Rework Completed 9/25/98  WELL CASING RECORD - BEFORE REWORK  Casing Cement Perforations Acid or Fracture Size Depth Sacks Type From To Treatment Record 13 3/8 914 700 LITE/A 9 5/8 5255 1625 LITE/A 7 7745 1060 PREMIUM  WELL CASING RECORD - AFTER REWORK (Indicate Additions and Changes Only)  Casing Cement Perforations Acid or Fracture Treatment Record  13 3/8 914 700 LITE/A 9 5/8 5255 1625 LITE/A 7 7745 1060 PREMIUM  WELL CASING RECORD - AFTER REWORK (Indicate Additions and Changes Only)  Casing Cement Perforations Acid or Fracture Treatment Record  13 3/8 914 700 LITE/A 9 5/8 5255 1625 LITE/A 7 7745 1060 PREMIUM  WITE Ine logs, list each type Log Types Leaged Intervals- Use additional sheets if necessary Log Types Leaged Intervals- CERTIFICATION 1 certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. CFR LA32).  Individual	x								
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13 3/8 914 700 LITE/A 9 5/8 5255 1625 LITE/A 7 7745 1060 PREMIUM  Describe rework operations in detail Wire line logs, list each type Use additional sheets if necessary Logged intervals  Run 7" casing cutter. Cut casing at 478. Trip out. Run 7" spear.  Could not remove casing stub. Trip spear laying. Run 2 7/8"  Dementing string to 6201. Circulate hole clean. Run cement plugs Is per attached sheet. Cut wellhead off and cap casing at bottom of sump.  CERTIFICATION  I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. CFR 144.32).  IAME AND OFFICIAL TITLE (Please type or print)  SIGNATURE  DATE SIGNED	Ca	asing	Ceme	nt	Perforation	ns	ļ ,	Acid or Fracture	
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						or tine and imp	risonment. (Re		
Aut McMillen   10/15/98			TLE (Please typ	e or print)		_		!	
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MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY - GEOLOGICAL SURVEY DIVISION

#### RECORD OF WELL PLUGGING OR CHANGE OF WELL STATUS

Required by authority of Part 615 Supervisor of Wells or Part 625 Mineral Wells of Act 451 PA 1994, as amended Non-submission and/or falsification of this information may result in fines and/or imprisonment.

Part 615 Oil/Gas Well	Plugging
🗓 Part 625 Mineral Well	☐ Change of Well

Well name and number Permit number Hersey 1052 MI-133-36-A002 Name and address of permittee CCT 2 0 1999

IMC Kalium, Ltd. 1395 - 135th Avenue Hersey, MI 49639

M Tarrozo Minoral Tron	<u> </u>				
Name and address of contractor/se	Type of well		Field name	•	
Cementrite Inc.	Mid-State Oil Tools	Mineral Well			
P.O.Box 623	6828 Lea-Pick Dr.	SW 1/4 NW 1/4 N	W 1/4	sec 26 T17N R 9W	
Mt. Pleasant, MI 48804-0623	Mt. Pleasant, MI 48858	Township Hersey		County Osceola	
48804-0025		Date plugging/change started 09/25/98		Date plugging/change completed 09/25/98	
DEO ampleona intuina altragina and	with an appropriate Change of Male II Chates			Data issued	

DEQ employee issuing plugging permit or approving Change of Well Status

Date Issued

Rick Henderson

Any change of well status which results in a change of production for a prorated well or a change in injectivity must include production or injection test records. All records must include a narrative or daily chronology and signed certification noted on reverse.

5933'-5063'150sacksClass A cement w/ 6%   30min					(Hole	WELL PL conditions		ging)				
13-3/8" - 48#/ft   914'   None   None   None						CAS	ING					
9-5/8" - 40#/ft   5255   None   None   Casingcuts at 12   706", and 478"      Depth of plug   Soltom   Top   Make and type   of bridge or plug   amount of cernent & and percent   and percent   of spacers/flushes   Wait time	C	asing size		When	e set	T A	mount casing	g pulled	1	Depth casing cut/pe	rfed; or windo	ows mille
9-5/8" - 40#/ft   5255   None   None   Casingcuts at 12   706", and 478"      Depth of plug   Sottom   Top   Make and type   of bridge or plug   amount of cernent & and percent   and percent   of spacers/flushes   Wait time	13-3/	3" - 48	#/ft	914'	A COLUMN TO THE STATE OF THE ST	None	3			None	- Patrical International	
7" - 23#/ft 7745 243' Casingcuts at 12 706', and 478'  PLUGS  Depth of plug Bottom Top Make and type of bridge or plug mix water  191' 6200' Baker PIP 6200'-5933' 50 sacks Class A Cement 30min 5933'-5063'150sacks Class A cement w/ 6% 30min Ben tonite    191' 6200' Baker PIP 6200'-5933' 150 sacks Class A cement w/ 6% 30min 800 sacks Class A cement w/ 6% 30min 100 sacks Class A ce	9-5/8	· - 40#	/ft					The state of the s		None		
PLUGS   Make and type   Cement plugs: type, amount of cement & and percent   Of spacers/flushes   Wait time						243		The second secon		Casingcuts	at 12	75'
Depth of plug   Make and type   Cement plugs: type,   Additives, type   Volume and types   of bridge or plug   amount of cement &   and percent   of spacers/flushes   Wait time	. A		T					···	i			_
Make and type   Gement plugs: type,   Additives,type   of bridge or plug   amount of cement &   and percent   of spacers/flushes   Wait time		•										
Make and type   Gement plugs: type,   Additives,type   of bridge or plug   amount of cement &   and percent   of spacers/flushes   Wait time			Ì			ĺ			Ī			
Make and type   Cement plugs: type,   Additives,type   of bridge or plug   amount of cement &   and percent   of spacers/flushes   Wait time	The state of the s			7								
Make and type   Gement plugs: type,   Additives,type   of bridge or plug   amount of cement &   and percent   of spacers/flushes   Wait time	** ***					1						
Depth of plug   Soltom   Top   amount of cement & and percent   of spacers/flushes   Wait time						PLU	ĞŞ					
Bottom   Top   mix water			Mak	e and type	Cer	ment plugs: ty	pe,	Additives	type		_	Tagge
	Depth	of plug	of bri	dge or plug	am	ount of cemen	t&	and perc	ent	of spacers/flushes	Wait time	Top?
5933'-5063'150sacksClass A cement w/ 6%   30min	Bottom	Top				mix water						Y/N
5933'-5063'150sacksClass A cement w/ 6%   30min	191	6200'	Bake	r PIP	6200'-5	5933' 50	sacks	Class	Α (	Jement		N
Bentonite					5933'-5	5063 <b>'1</b> 50	)sacks(	lass A	cer	ent w/ 6%	30min	N
15063'-4193'150 sacks   30min     4193'-3323'150 sacks   " " " " " " 30min     3323'-2433'150 sacks   " " " " " " 30min       30min												
4193'-3323'150 sacks " " " " " 30min   3323'-2433'150 sacks " " " " " " 30min   30min   2433'-1583'150 sacks " " " " " " 30min   30min			·		5063'-4	193'15	sacks	1111	11 1			N
	-				4193'-3	3323 <b>'</b> 150			11		30min	Ň
2433'-1583'150 sacks " " " " " " " 30min								11 11 11		1	30min	. N
1583'- 713'150 sacks " " " " " " " 30min								- 17 - 17 - 11				N
		·			1583'-	713 150	sacks	30 33 51	7.7		30min	N
713 '- o'100 sacks Class A Cement								Class	Α (	lement		N

if NORM or other materials were left or reinserted into wellhore. If so, describe materials fully in the Daily Chronology section on reverse Check if cores were taken and attach core descriptions

Mail completed original and three copies to the appropriate DEQ district office or to the Lansing office within 60 days after completion of plugging/change of a Part 615 oil/gas well or within 30 days of a Part 625 mineral well.

**GEOLOGICAL SURVEY DIVISION** 

MICHIGAN DEPT OF ENVIRONMENTAL QUALITY

PO BOX 30256

LANSING, MI 48909-7756

					CH	ANGE OF V	VELL STAT	rus	_				
Change w	as to:		Convert curren	t zone to:		liate well:			ck (reco	mplete a	s) [	Redrill:	,
-			Productio			arf and test exi			•	uction zo	_		ital drain hole
			Disposal		_	epair casing/ce	_	==	sposal			Collaps	ed casing
			Secondar	v recoverv		her		=		recover	v		eam open hole
			Storage	, , , , , , , , , , , , , , , , , , , ,				_	orage	, ,000,00	,		
ĺ			Other						her			Other	
			Other		\A(a)  ==		DEFORE		- 7			LJOINEI	
C:	asing		Cer	ment	vven ças	sing record Perfora		cnange					
Size	Der	nth	Sacks	Туре	From	To	if plugged	HOM2		Acid	or fra	cture treatme	nt record
Size		J.111	Gacks	, ype	110111	10	ii piuggeu	, now,	+	7010	OI III	Citale deadlie	in record
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					<u> </u>	-							
				ļ									
		Well	casing rec	ord - AFTE	R change	(Indicate ad	ditions and	change	es only	, comp	lete t	est record)	
Ca	asing		Cer	nent		Perfora	tions						
Size	Dep	oth	Sacks	Type	From	То	if plugged.	, HOW?		Acid	or fra	cture treatme	nt record_
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	<u>.                                      </u>		BEEOD	E CHANGE		t			<u> </u>	AFTER	CHAN	CE.	
Total depti	h	Con	npleted Fm	Well comp	leted for	•	Total depth	C	mpleted			completed for	
			,			1		-					3
BOPD		MC	FGPD	Înj Rate	Pre	ssurə	BOPD	M	CFGPD		Inj Ra	ite .	Pressure
30. 2				1.1,7.5.5	1.70	552,5	30.0	1 ***	J. U	į	,		1,1000210
		DAI	LY PRODUCT	ION TEST R	ECORD		DAILY INJE		TCCT D	50000	1	ection well	<b>N</b> -i
	Oil		Water	Gas		ssure	DAILT INJE		water	T	Pres		Brino disposal Specific gravity
Date	(bbls	. 1	(bbis)	(Mcf)	Tubing	Casing	Date		of gas	Begin		Ending	of water
Date	(5515	<del>"  </del>	(5513)	(14101)	, rubing	Casing	Date	91 141	4 Ann	Beginn	9	<u> </u>	0, 1/4(0)
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		- 1							···	<u> </u>			TERRESONAL TRANSPORTER
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		j			· · · · · · · · · · · · · · · · · · ·				At 1 1000 4				
						DAILY CHR							
										ugging ins	structio	ns Describe	tools, tubing, etc. left
in hole and	any logs	runni	ng Include da	tes pits filled, s	surface restore	d etc. Use add	itional pages a	s needed	·				
Date	Nai	rative											
7 /00 /0	, n		2/3	1 711 00									
7//28/5	εν   κε	COV	ver 243	/ Ca	STUE				i	a '	77x2	f - 4	
7/29/9	98   Ir	ista	all Bak	er PIP	Packer.	. Cut 7	easir	ng 12	75	and -	100	to re	SOVEL <del>S</del>
	17'	٠.	(No re	covery)	}								
9/29/9	98   Cu	it :	7" casi	ng at 4	78'. 7	ry to r	emove o	casin	ıg 🗕 :	no re	cov	ery	
	Ru	ın (	6201 of	2-7/8"	cement	t string	g. Circ	culat	e no	ore c	Leai	Π•	
	Ru	ın (	cement	plugs a	ind cap	off wel	.1.						
	1			- 0	-								
NOTICE: I	Inder 9	rt 61	5 Supervisor o	f Walls or Pa	e 625 Minera	Malle Art 45	1 DA 1004 as	2mende	ori a we	ii owner b	25 00	ntinuina liabili	ty for the integrity
of a plugge			o Oupervisor (	A FIGIS OF FE		i viciis, Aci 40	1177 1354, 66	, amena	, a 110	-	.00 00	manny maoni	ty for the integrity
		l state	that I am au	horized by sa	id owner. Th	is report was p	repared unde	r my sup	ervision	and direc	ction.	The facts sta	ted herein are
			lete to the bes			•							
Name and	title (ori	nted a	r tyned)			Autho	rized signatur	a //				<del> </del>	Date
			n, Mine	field 9	Superint		reca signatur	Kms)		v M		2	10/14/90
	_		<u> </u>			cellar rat and r	mouse holes	and nite	filled sit	e leveled	and c	leaned and r	cords filed

NASHINGTON, DC 20460   WELL REWORK RECORD
NAME AND ADDRESS OF PERMITTEE   NAME AND ADDRESS OF CONTRACTOR   IMC Kalium, Ltd
MC Kalium, Ltd
1395 135th Avenue
Hersey, MI 49639
N
COCATE WELL AND OUTLINE UNIT ON   SECTION PLAT - 640 ACRES   MI
N
SE1/4 of NW1/4 of SW1/4 of
Locate well in two directions from nearest lines of quarter section and drilling unit
Locate well in two directions from nearest lines of quarter section and drilling unit
Surface Location 1118ft. from (N/S) N Line of quarter section and 1319 ft. from (E/W) W line of quarter section WELL ACTIVITY Brine Disposal Enhanced Recovery Hydrocarbon Storage Surface Location 1118ft. from (N/S) N Line of quarter section TYPE OF PERMIT Individual Enhanced Recovery Hydrocarbon Storage Total Depth After Rework Type OF PERMIT Individual Enhanced Recovery Hydrocarbon Storage Total Depth After Rework To
A
A
X
Enhanced Recovery
S
X   Sol'n Mining   Lease Name   10/7/98   Well Number   2081
Lease Name Kalium Hersey
National Complete
10/8/98   WELL CASING RECORD - BEFORE REWORK
WELL CASING RECORD - BEFORE REWORK   Casing   Cement   Perforations   Acid or Fracture
Casing         Cement         Perforations         Acid or Fracture           Size         Depth         Sacks         Type         From         To         Treatment Record           30         90         Driven         Image: Color of the co
Size         Depth         Sacks         Type         From         To         Treatment Record           30         90         Driven
30 90 Driven 908 825 A 908 825 A 908 5134 1950 A 9718 730 H 981 WELL CASING RECORD - AFTER REWORK (Indicate Additions and Changes Only)
13 3/8 908 825 A 95/8 5134 1950 A 97/18 730 H 98/14 CASING RECORD - AFTER REWORK (Indicate Additions and Changes Only)
9 5/8 5134 1950 A 7718 730 H WELL CASING RECORD - AFTER REWORK (Indicate Additions and Changes Only)
7 7718 730 H  WELL CASING RECORD - AFTER REWORK (Indicate Additions and Changes Only)
WELL CASING RECORD - AFTER REWORK (Indicate Additions and Changes Only)
Onelan I Onenak I Dadait I Add Eit :
Casing Cernent Perforations Acid or Fracture
Size Depth Sacks Type From To Treatment Record
30 90 Driven
13 3/8 908 825 A
9 5/8 5134 1950 A
7 7718 730 H 7706 7704 4sh/ft
Describe rework operations in detail Wire line logs, list each type
Use additional sheets if necessary Log Types Logged intervals
Puil tubing. Perf 7702-7707. G/N/CCL - Land at 7720'.
·
CERTIFICATION
CERTIFICATION
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		UNITED	STATES ENVI	RONMENTAL	PROTECTION	AGENCY	
			WAS	HINGTON, DC	20460		
EPA				L REWORK RE	CORD		
NAME AND	ADDRESS (	OF PERMITTEE		NAME AND A	DDRESS OF	CONTRACTOR	
MC Kalium,	Ltd			IMC Kalium, L	tci.		
1395 135th A	Avenue			1395 135th A	venue		
Hersey, MI	49639			Hersey, MI 4	19639		
OCATE WE	ELL AND OU	TLINE UNIT ON	STATE	COUNTY		PERMIT NUM	BER
SECTIO	N PLAT 6	40 ACRES	MI	Osceola		MI-133-3G-A00	02
	N		SURFACE LO	OCATION DES	CRIPTION		
$\Box$			SW1/4 of N	W1/4 of <u>NW</u> 1/4	of 1/4 of S	ection 26 Tov	vnship <u>17N</u> Range <u>9W</u>
X							ection and drilling unit
v		E	Surface Loca	ation <u>1169</u> ft. fro	m (N/S) N Li	ne of quarter s	ection
				from (E/W) W			
			WELL ACTIV			efore Rework	TYPE OF PERMIT
		H	Brine Dis		8045		Individual
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7	7745	1060	PREMIUM				
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STATE OF MICHIGAN	TYPE OR PRINT
REQUEST FOR TRANSFER OF A PERMIT  SUBMIT 4 COPIES TO: Department of Natural Resources	PERMIT NO 1 WELL TYPE -810-855-567 Solution Mining
Geological Survey Division Box 30028	FIELD NAME
Lansing, Michigan 48909	WELL NAME AND NUMBER
Filing for change of ownership of well is required in accordance with □Act 31. P.A. 1939 and ○Act 315 P.A. 1969, as amended and Administrative	Kalium 1052 (formerly PPG 1052)
Rules promulgated thereunder	SW 1/4 NW 1/4 NW 1/4 SECTION 26 T 17N A 9W
	TOWNSHIP COUNTY
TRANSFER OF A PERMIT FROM:	Hersey Osceola
PPG Industries, Inc.	
ADDRESS Number and Street City or Town State Zip Code Telephone	/ 41 0 3 4 2 4 0 0 4 1
One PPG Place, Pittsburgh. PA 15272  All operating rights are discharged by	(412)434-2841
Owner(s) Representative(s)	Signofuretsi Date(s)
PPG Industries, Inc., R.J. Samelson	D Sam Mary 9/1/88
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NON-SUBMISSION AND/OR FALSIFICATION OF THIS INFOR	WANTION MAY BESTILL IN FINES AND/OB IMPRISONMENT
	A PERMIT TO:
NAME(S)_OF ACQUIRING OWNER(S)	A FERMIT TO.
Ķalium Chemicals, Ltd.	
ADDRESS Number and Street City or Town Still Zi Code Telephone	
11126 140th Avenue, Hersey, MI 49639	(616) 832-3206
(We) (I) have acquired the well under this permit and assume full respons   law regulations and orders	sibility for the drilling operation, and abandonment in conformity with the
legulations and orders	1 -2 /2 /2 / /
SURETY BOND SINGLE WELL ATTACHED BONDIN	
BLANKET ON FILE BOND F	NUMBER
All operating rights and responsibilities are assumed by	
Owner(s) Representative(s)	Signature(s) Date(s)
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Kalium Chemicals, Ltd., Donald D. Metz	zger Would Mother 9-19-88
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FOR DEPARTMENT OF NATU	RAL RESOURCES USE ONLY
	DISTRIBUTION BY DAR
$\sim$	Lonsing
	; / Acquiring Owner
APPROVED Stale & Smortourk	10/12/88 Selling Owner
Manature	Dére ☐ Field

#### STATE OF MICHIGAN TYPE OR PRINT REQUEST FOR TRANSFER OF A PERMIT PERMIT NO WELL TYPE 010-851-367 Mineral Exploration 4 COPIES TO: Department of Natural Resources FIELD NAME Geological Survey Division Box 30028 Lansing, Michigan 48909 WELL NAME AND NUMBER Filing for change of ownership of well is required in accordance with CACT Kalium 1052 (formerly PPG 1052) 81, P.A. 1939 and Cact 35 P.A. 1969, as amended, and Administrative WELL LOCATION Pules promulgated thereunder SW 1/4 NW 1/4 NW 1/4 SECTION 26 1 (TWNSHIP TRANSFER OF A PERMIT FROM: Hersey Osceola NAME S OF SELLING OWNER(S) PPG Industries, Inc. ADDRESS Number and Street - City or Town - State - Zip Code - Telephone One PPG Place, Pittsburgh, PA (412) 434-2841All operating rights are discharged by Comertal Parxesantativa(s) PPG Industries, Inc., R.J. Samelson ELIGIBILITY FOR PERMITS IS CONDITIONED UPON COMPLIANCE WITH THE STATUTES RULES AND ORDERS OF THE DEPARTMENT OF MATURAL RESOURCES PERMITS WILL NOT BE GRANTED TO PERSONS NOT IN COMPLIANCE NON-SUBMISSION AND/OR FALSIFICATION OF THIS INFORMATION MAY RESULT IN FINES AND/OR IMPRISONMENT. TRANSFER OF A PERMIT TO: NAME(S) OF ACQUIRING OWNER(S) Kalium Chemicals, Ltd. ADDRESS Number and Street - City or Town -- Stat - Zi Code - Telephone 11126 South 140th Avenue, Hersey, MI 49639 (616) 832-3206 (We) (f) have acquired the well under this permit and assume full responsibility for the drilling operation, and abandonment in conformity with the law regulations and orders L/C Bank of Montreal SINGLE WELL ATTACHED SURETY BOND ON FILE All operating rights and responsibilities are assumed by Owner(s) Representative(s) Signature(s) Date(s) Kalium Chemicals, Ltd., Donald D. Metzger FOR DEPARTMENT OF NATURAL RESOURCES USE ONLY DISTRIBUTION BY DNR Lansing ☐ Acquiring Owner ☐ Selling Owner

☐Field

## MINERAL WELL PERMIT For a Brine, Storage, or Waste Disposal Well

3 - FIELD 4 - APPLICANT

Permit Number 319 010-855-267	
Date Issued 9/9/85	

PPG Industries. Inc. Permission is hereby granted to (Name) One PPG Place, Pittsburgh, PA 15272 (Address) solution mining convert & operate (Type of Operation) (Type of Mineral Well) SW눌, MM눌 NW눌 Section 26, T17N, R9W, Hersey Twp. Osceola County to be located in . WELL NAME WELL NUMBER FORMATION INTENDED DEPTH Niagaran 8000' ELEVATION RB. GR. RF  $RT_{-}$ SPECIAL INSTRUCTIONS Well is to be drilled in accordance with Supervisor of Wells Letter of Instruction #1-84. Same surface as Permit #010-851-367 Permit is subject to the provisions and requirements of Act 315, P.A. 1969, as amended, and rules, requirements, or orders issued by the Supervisor of Mineral Wells and the Department of Natural Resources. David H. Bechler Box 30028, Lansing MI 48909, 517-373-9290 .0. 1 This permit is issued on the basis of the approved program outlined in the application. No change or alteration is to be made without the permission and approval of the Supervisor of Mineral Wells or his authorized representative. 2. This permit shall be posted in a conspicuous place at the well location and remain posted until the operation is completed. 3. This permit will expire 6 months from date of issuance if operation has not commenced or if the operator has not requested and received an extension of time. 4. An unusual, unexpected, or difficultly-controllable large volume of oil, gas, brine or flowing fresh water or a condition hazardous to public health, safety or waters of the state shall be reported immediately to the Supervisor. THE FOLLOWING SHALL BE NOTIFIED AT LEAST 24 HOURS Cadillac Field Office 616-775-9727 PRIOR TO THE COMMENCEMENT OF OPERATIONS: DISTRIBUTION: LINEN-APPLICANT 2 - LANSING

#### DRILLING PERMIT APPLICATION FLOW SHEET

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DEBATOR PP	Industries Inc NUMBER MW-68.85
WELL NAME	#1052 DATE RECEIVED AUG 2 9 1985
	A
ACCEPTABLE	Same surface as P# 010-851-367
FEE	Check to cashier Convertion to solution mining
	Deepening
BOND	Single well bond attached
	Blanket on file
N. M.	Cash bond receipt
DRLG. UNIT	Special Order #1-73
and the state of t	General Rules Doady
	Field spacing order
and the state of t	Voluntary pooling agreement
LOCATION	Survey Elevations
H	Directional plans
1_1.1	——Posted on map
CSG./SEAL	Rotary Cable Comb
7	Inter. css. (S.O. 2-73) Exception
	Thru Gas Storage
	<u>//</u> BOP
SURF./MIN. OWN.	Private; landowner notified
	State; lease #; restrictions;
	Lands Division approval
	Federal; copy to MMS; copy to USFS; USFS approval
H <sub>2</sub> S REVIEW	Copy to H2S Unit
	Contingency Plan
	3 copies of H <sub>2</sub> S Committee
EIA REVIEW	District Cadillac Region II State Land NO
	Special Order 1-81 addressed
P. & P./GEOL.	Confidential Request
	Proration Unit Allowable Letter:
	Petr. Geol. Unit Field Name:
MISC.	Public hearing pending
	Records due
·	Other problems
REVIEWER DB	9/4/85 DATE:

MW-68-85
PRINT OR TYPE INFORMATION SEE INSTRUCTION SHEET R 7500-1 BEFORE FILLING OUT APPLICATION

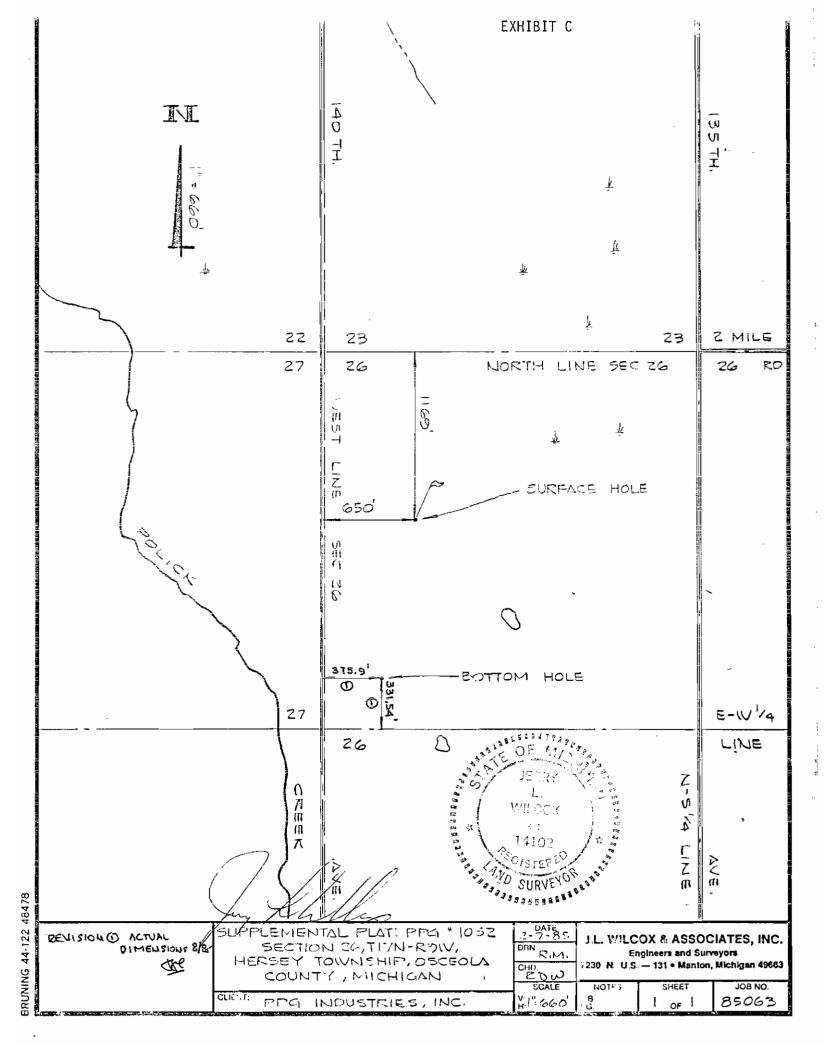
STATE OF MICHIGAN		1. DATE OF APPLICATION		2. FEE ENCL			
DEPARTMENT OF NATURAL RESOURCES				\$50.00	<u> </u>		
GEOLOGICAL SURVEY DIVISION		3. APPLICATION TO					
APPLICATION FOR A MINERAL WELL P	FRMIT	Convert to Minera	I_Well_	5. WELL DES	SIGNATI	ON	_
To Drill, Operate, Convert, or Rework		Solution Mining		#1052			
a Brine, Storage, Disposal, or Test Well.		5 LOCATION:					
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PPG Industries, Inc.					(	412)4	34-284
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CABLE VROTARY COMBINATION  25 PROJECT ENGINEER OR GEOLOGIST	<u>Niaqara</u> 26.ADDRESS	<u>n</u>					. <u>8000</u>
Donald D. Metzger		haumudaa Dudua Mt	D1	MT //C	i		
28 PROGRAM OF DRILLING, CONVERTING REWORKING (See appropriate instruction sheet Attach 3 copies of prop	S, CASING, CE	terprise Drive, Mt. MENTING, COMPLETING OPE - including but not necessarily lin	PATING A	ND MONITO	RING.		<u>/3-394</u>
instruction sheet )				INSTRUC	OTION CL	IFET NO	<del></del>
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- Environmental Impact Assessmen	t		Dispo	sal	D-3	- Chairman	A-1 ,
- Drilling Program			Solut	ion Mining	D-4		R-2 Å
Bitting (10g) all			Test V	Veii	D-5		R-1
- Completion Program			*Rew	ork, Deepen, o	or Conver	t to New	Use
- Operation							
- Monitoring							
- Notificating							
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29 ADDRESS CORRESPONDENCE AND PERMIT TO:					(		EPHONE
R. J. Samelson, PPG Industries, Inc	c. One PP	<u>G Place, Pittsburgh</u>	<u>, PA 1</u>	5272		<u>412)4</u>	34-284
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STATUS OF BOND		of Act 315, P.A. 1969				ation o	in this
OK		application and attached	d report is	true and co	rrect.		
APPLICATION APPROVED BY							
Havid H. Deckler		SIGNATURE APPLICANT A	JTHORIZE	D REP)	£	DATE	
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#### STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES GEOLOGICAL SURVEY DIVISION

SURVEY RECORD OF WELL LOCATION (Submit five copies with Application for Permit to Drill a Well for Oil or Gas, Brine Disposal, Hydrocarbon Storage or Secondary Recovery)

85063

LESSEE (OWNER OF LE		THOUGESTS.	7110			
LESSOR (OWNER OF M		INDUSTRIES	, INC.			WELL NO
PPG Industries		J/			(PPG #1052)	1052
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TOWNSHIP Hersey					Osceola	
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PLAT BELOW R	(1 Mile Squar		TION		at left. Where drilling unit cr	-
650 / LO  340 LO  375.9'	DRFACE DCATION TOM HOLE DCATION	z6	144U1 104U1444 PO		divide the plat into an east half a north half and a south half (  Outline the unit and locate directions from NEAREST qualines  2. Location of well in two directions from and unit lines SURFACE LOCATION  1169 ft from North line (north-south)  ———————————————————————————————————	and a west half OR which ever applies). The well in two reter section and unit ons from NEAREST is: Of Quarter Section Of Quarter Section Of unit of unit
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NAME OF INDIVIDUAL	NYO KURVEY				DATE TIFLE	,
Jany J	Wills		lerry L.	Wil	cóx, LS#14102 2-8-85 Pres	ident
ADDRESS INTLCOV	. ACCOCIA	TES INC	7030 M	0 v.+ b	U.S131 Manton, Michigan	19663
	& ASSOCIA				U.S131 Manton, Michigan ACCURATE TO THE BEST OF MY KNOW	
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# STATE OF MICHIGAN MINERAL WELL OPERATORS ENVIRONMENTAL IMPACT ASSESSMENT

#### Well Identification

Name of Applicant: PPG Industries, Inc.

Address: 2258 Enterprise Drive

Mt. Pleasant, Michigan 48858

\*Well Name and Number: PPG #1052

Location: SW1/4 of NW1/4 of NW 1/4

Section 26, T17N, R9W

Hersey Twp., Osceola County, Michigan

#### Description of Project

The PPG #1052 well was directionally drilled from a surface location 1169 feet from the North line and 650 feet from the West line of the Northwest 1/4 of Section 26, T17N, R9W, to a bottom hole location 2296.46 feet from the North line and 375.9 feet from the West line of the same Northwest 1/4. The well was drilled to a total anticipated vertical depth of approximately 8000 feet. The surface and bottom hole are both located in the Northwest 1/4 of Section 26, T17N, R9W, Hersey Township, Osceola County, Michigan. This application is for a permit to convert Well #1052 from an exploratory well to a solution mining well. Surface and mineral rights for the entire Northwest 1/4 of Section 26 are owned in fee by PPG Industries, Inc. or under lease to PPG Industries, Inc.

This well is for the purpose of testing the solution mining technology for the production of potash bearing brines. This area has already been cleared and leveled for purposes of drilling exploratory mineral wells. The land surrounding the wellsite is rolling, open, dormant field. Land use in the surrounding area is mixed agricultural and forest recreational. Natural topography at the site had been a ridge and drainage is both Northwest and Northeast. The drainage to the Northwest is toward Polick Creek while that to the Northeast is toward Bull Hill Creek. Both creeks are over 1/4 mile away and are part of the Muskegon River watershed. There are no lakes, swamps or principal streams within 1/4 mile.

Access to the location will be from the West off 140th Avenue and utilizes the existing service road. One Hundred Fortieth Avenue is a gravel surfaced county road located along the West line of Section 26.

<sup>\*</sup>Permit to Drill No. 010-851-367

#### II. Environmental Impact Assessment

The drilling of the wells at this location should have only a minor effect on the ecological system of the vicinity. Wildlife is abundant throughout the region, but no special or endangered species are known to exist in the vicinity of the proposed project. The proposed project should have only a slight effect on future population patterns.

The proposed project is intended for solution mining testing. Seven inch production casing will be set to the A-1 Evaporite and cemented back to surface.

No significant disruption to the environment will result since the drilling area is that previously cleared and paved for those wells which have already been drilled. A drilling pad area of approximately 1-1/4 acres has been prepared for drilling all the wells. Extensive tree removal was not necessary to clear the drilling pad. Because of the relatively large area included in the project, a slight amount of earthwork was needed to level the entire area. A Soil Erosion and Sedimentation Permit was acquired from Osceola County. Appropriate drainage and sedimentation control measures have been incorporated in the operational plan. Side slopes have been graded and are being seeded for stabilization. An asphalt pad has been laid in a 360' x 140' area around the drilled well and planned adjacent wells. This pad is sloped to provide drainage to the sealed cellar, which is routinely evacuated with a vacuum truck.

A mud pit system will not be required since this is an existing well and will also not be required for reworking/conversion purposes.

Access to the wellsite will be from the West off 140th Avenue and utilizes the existing service road. No new road will need to be constructed,

Since no hydrogen sulfide gas was encountered during the drilling, and since casing has been set, the possibility of encountering this material during rework/conversion operations can be ruled out.

Upon completion of solution mining operations, the well will be plugged in accordance with Michigan's Department of Natural Resource's instructions prior to abandonment. This project is expected to have only a slight effect on the immediate environment.

#### III. Possible Alternative to the Proposed Well Location

The proposed bottom hole location has been selected on the basis of a geologic interpretation. The surface location has been chosen on the basis of an extensive on-site evaluation. By drilling this well from a common drilling pad with others, a minimum disruption of the environment will result. The proposed project area is well isolated from surface waters and human habitation. We believe the site is generally well suited for the undertaking of this project and that adequate protection of the environment can be maintained at this location. For these reasons, we believe that drilling the well from the surface location proposed is the best available alternative.

#### IV. Any Irreversible and Irretrievable Commitment of Resources

The proposed project should not require a significant commitment of natural resources. The productivity of the land utilized for the drilling pad and access road will be lost during the life of the project, but the surface resources of the drillsite will not be irreversibly committed. Drilling of the well will not curtail the use of the surrounding environment.

#### V. Summary

order to minimize surface disturbances, this well has directionally drilled from a common surface location which has been used for other wells in this 1/4 Section. The drilling pad area necessary for this project is approximately 1-1/4 acres. The drilling pad is located on rolling, generally open, dormant land. Land use surrounding area is mixed agricultural and forest recreational. Land use in the drainage from the locations is both Northeasterly and Northwesterly toward tributaries of the Muskegon River. There are no surface waters within 1/4 mile of the proposed wellsite. Appropriate drillsite drainage and sedimentation control measures have been included in the operational We do not anticipate sour gas at this location. the wellsite is from the West off 140th Avenue and utilizes the existing service road. We consider the environmental impact of this project to be minimal, and will make every effort to ensure protection and preservation of the environment during the course of our drilling and testing operations

Applicant's Representative

Comments by Department of Natural Resources Representative:

Authorized Representative

#### Section 28 Solution Mining Well Program

#### I. Drilling Program

- A. Well No. PPG No. 1052 was drilled as follows:
  - 1. Fifty-two feet of conductor pipe was driven. This would allow for the landing of a 20" conductor should washout below the 24" conductor pipe occur while drilling through the glacial drift.
  - 2. A 17-1/2" hole was drilled to a firm footing as determined by geologists from samples.
  - 3. A 13-3/8" S.T.C. 54# buttress casing equipped with Texas pattern weld-on shoe was run. A float collar was set one joint, off bottom. The lower 5 joints of casing were strapped across the collars in two or three sectors. Top and bottom cement plugs were run with no centralizer. See attached Exhibit "A" for additional detail.
  - 4. A cement basket was run approximately 50° below surface to make sure that the cement would circulate back to surface.
  - 5. A 12-1/4" hole was drilled to 5256'. Directional drilling was employed as per the attached Exhibit "B". Exhibit "C" shows the bottom hole location relative to the surface location. Directional surveys were run as required. Geophysical logs were run from the base of the surface casing to the intermediate casing point. These logs include those which provide information on lithology, porosity, and fluid characteristics.

A 9-5/8" I.T.C. 40# N-80 grade pipe was landed with a guide shoe on bottom and float collar at the first joint above, and the bottom six joints were secured with Weld-A. A stage collar was set at approximately 3400' from surface. Centralizers were run. The lower joints of casing were roughened to provide a better cement bond. See Exhibit "D" for additional details.

Pressure tests were completed after the intermediate casing had been run and after the blowout preventor equipment was installed on the 9 5/8" casing. The tests were run before the cement plugs were drilled out. The BOPE system was pressure tested for leaks, using the rig pump, to a pressure of 500-800 psi.

6. A 8-1/2" hole was drilled from the base of the intermediate casing to 7817'. The drill pipe was removed from the hole and a complete pressure check of the blowout preventors and casing was run. The BOPE system was pressure checked to 5000 psig, the Hydril to 2500 psig and the Intermediate Casing to 80% of burst pressure. This was done as a precautionary measure in the event of encounteringH<sub>2</sub>S Gas in the A-2 and/or A-1 Carbonate. At this stage a full H<sub>2</sub>S monitoring system was also installed on the rig.

Directional drilling was accomplished in accordance with Exhibits "B" and "C". Directional surveys were run as needed.

- 7. Drilling continued into the top of the A-1 Evaporite, at which time a core barrel was picked up. A 4" core was then cut through the salt and potash beds of interest. The hole was then reamed with an 8-1/2" bit and deepened to the top of the Niagaran formation. Bottom hole location was verified by running a gyro survey. Monitoring for gas continued to total depth.
- 8. The core was then processed by PPG laboratory personnel.

#### B. Drilling Fluid

Drilling through the glacial drift was accomplished with chlorinated fresh water mud in steel working pits with solids control equipment. The cuttings were discharged to the asphalt lined disposal area and the fluid hauled to a disposal well. The hole from the base of the surface casing to the Detroit River Salt, was drilled with fresh water using steel working pits. Mud system volume was maintained by fresh water makeup and solids content was controlled by solids removal equipment. The solids were discharged into the asphalt lined disposal area. The drilling fluid becomes saturated with NaCl while drilling through the salt sections. Saturated brine is then used to maintain mud system volume. Solids were removed by the solids control equipment and discharged into the asphalt lined disposal area. 1/2" hole drilled from the base of the intermediate casing to the top of the A-2 Evaporite utilizes the brine-based mud system generated during drilling of the well to intermediate casing point. Saturated brine makeup was used. After encountering the A-2 Evaporite, the brine mud system was displaced from the hole into steel holding tanks and replaced by a polymix-NaCl saturated mud system which contains Mud system properties were maintained at low water loss, and at a desired viscosity, yield and weight. This mud system is used to drill to total depth. This mud system was then displaced back into steel holding tanks for use in drilling of another well. Excess fluid generated during drilling was disposed in a disposal well.

#### C. Safety Equipment

Attached as Exhibits "E" and "F" are the blowout control systems used for drilling to intermediate casing point and to total depth, respectively. Monitoring of  $\rm H_2S$  in the circulating drilling mud system is accomplished on a 24-hour basis by mud logging equipment. The additional  $\rm H_2S$  monitoring equipment, mentioned above, augments this system.

#### II. Completion Program

#### A. Casing and Tubing

Ho1	e		Casing		
Depth	Bi <u>t Dia.</u>	O.D. Size	Wt./FtGrade-C	ondit <u>ion</u>	Depth
52' 52-914' 914-5256' 5256-8045'	Drive 17-1/2" 12-1/4" 8-1/2"	24" 13-3/8" 9-5/8"	0.412" Wall 54.5# Buttress 40.0# N-80 23.0# N-80	New New New New	52 ' 914 ' 5255 ' 7787 '

#### B. Down Hole Equipment

The 7" casing was run in an 8-1/2" hole and set to approximately 7787' as follows:

- 1. A guide shoe was used on bottom with a manual fill float collar located one joint above the shoe. The guide shoe and float collar were locked on with a Baker Lok.
- The centralizer was run into the middle of the first joint. The centralizer was held in place with a stop ring. The float shoe was centralized. Additional centralizers were run into the hole at points of high angle.
- 3. A short or marker joint was installed approximately 5-6 joints off bottom.
- 4. The mud system in the hole was circulated when the pipe is on bottom.
- 5. The casing was reciprocated while circulating and cementing. Reciprocation is stopped just prior to bumping the top plug.
- 6. A bottom (red) wiper plug was run.

#### C. Cement

The 7" casing was cemented as follows:

1. The well was plugged with cement up into the A-1 Salt to a point below where the 7" casing is to be landed.

- Thirty barrels of fresh water were pumped ahead of the cement.
- 3. The cement volume, determined by calculating hole volume from the caliper log, required to bring the cement to surface was calculated. Single stage cementing was used, as recommended by the cementing company. Cementing was accomplished with:

940 sacks poz., salt saturated 50 sacks Class H with 5% KCL, 1% HALAD 322

#### D. Geophysical Logging

In addition to the logs run at intermediate casing point, gamma ray, neutron and other lithology indicating logs are run from the base of the intermediate casing to the top of the Niagaran formation. Later, when the cement plugs are drilled out to below the zone of mineralization, a series of cased hole-logs will be run. A cement bond log and collar locator will be run from total depth to surface. The depth of the casing is checked using a collar locator log to locate the marker joint.

#### E. Tests

The pressure testing of the 7" casing to 80% of burst pressure will take place prior to the initial mining. This pressure exceeds 133% of operating pressure. A packer will run to the bottom and the pressure checked in the final stages before mining commences.

#### F. Mining Interval

Mining will be commenced in the salt a short distance above the bottom of the 7" casing. The exact depth depends on the depth at which the potash bed is encountered.

#### G. Well Area

The wellhead will be within a concrete trench sump which will gravity drain through a steel pipe to another sump within a building in which pumps and other equipment will be located. Accumulation of any leakage in this sump will be pumped back into the circulating solution mining fluid.

#### III. Operation

#### A. Well Operation:

#### 1. Single Well Operation

a) Well No. 1052 will be operated initially as a single well with annulus injection and tubing withdrawal. Oil will be used as an inert pad to provide roof control and will be added as required. The well will be operated as a single well until the mined out cavity is large enough to connect with Well No. 1051. The well will then be converted to multi-well operation.

#### 2. Multi-Well Operation

a) After Well Nos. 1051 & 1052 are connected, the wells will be operated as two well gallery. Either well may be operated as an injection or withdrawal well in the multi-well mode. Oil will continue to be used as required to provide roof control.

#### B. Operating Parameters

- 1. Injection flow will vary according to the stage that the cavity is in and the plant production requirements. During single well operation the injection flow will average less than 50 gpm. In multi-well operation the gallery flowrate will average as low as 75 gpm during certain stages and as high as 390 gpm during other stages. The gallery well may operate as high as 500 gpm for a short period of time.
- 2. Withdrawal flow will be approximately 97% of injection. No losses are anticipated to the formation.
- Injection temperature will range from 50°F to 175°F.
- 4. Injection pressure will depend on the injection flowrate and the density difference of the injection and withdrawal fluids. It is anticipated that the injection pressure will range between 900 and 1545 psig.
- 5. Specific gravity of the withdrawal fluid will range between 1.2 and 1.25.
- 6. Chemical composition of the withdrawal fluid will depend on the ore being dissolved and is anticipated to range from nearly pure water to an aqueous solution of sodium chloride (NaCl) and potassium chloride (KCl) containing up to 435 gpl combined dissolved NaCl and KCl.
- 7. The injected fluids will be pretreated to reduce the dissolved oxygen concentration to less than 10 ppb for corrosion control purposes. Catalyzed Sodium sulfite or other commercially available chemicals will be used to scavenge the oxygen.

#### IV. Monitoring

#### A. Operating Parameters

The injection flowrate to each well will be continuously monitored by a totalizing flowmeter. The withdrawal flow from all wells will be combined and monitored with a continuous, totalizing meter. The chemical analysis of injection fluids and the withdrawal fluid from each individual well will be used along with the flowrates to determine a material balance on each well or gallery well.

#### B. Well Integrity and Solutioning Process.

- 1. The well head and surface equipment will be visually monitored by operations.
- The condition of the borehole, casing, and cement sheath will be determined by monitoring the pressure when the well is operating. If any loss of fluid (other than expansion of the cavity) is indicated from a comparison of the injection and withdrawal flowmeters, pressure and/or video testing of the casing will be performed to locate leaks.

#### C. Surface Changes.

A network of benchmark monuments is being installed for the purpose of monitoring surface changes in the solution mining area. Baseline vertical control will be established before any solution mining is performed. The network includes monuments within an area covering approximately 7.5 square miles in and around the solution mining area, as well as several monuments located outside the intended mining area, which serve as reference benchmarks. Annual surveys will be conducted during the solution mining operation to ascertain any elevation changes on the surface. Reports will be mailed to DNR every two years.

EKJGO8/JG: 1mk

#### Exhibit A

### Surface Casing (13-3/8" in 17-1/2" hole @ 914')

- Use insert float and Texas Pattern Shoe and lock to shoe joint with thread lock.
- 2. No centralizers.
- 3. Circulate hole a minimum of one complete circulation.
- 4. Do not reciprocate casing.
- 5. Run bottom (red) wiper plug. Do not use if carrying L.C.M. in cement.
- 6. Pump 70 bbls. fresh water ahead of cement.
- 7. Cement with:
  - a. 500 sacks HOWCO Lite, 3% CaCl
  - b. 200 sacks Common A, 3% CaCl

EDNRP1/JG/bg

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#### Exhibit D

## Intermediate Casing (9-5/8" in 12-1/4" hole @ 5255')

- 1. Use float collar and guide shoe and lock to shoe joint with Halliburton Weld-A.
- Run one centralizer 10' above guide shoe and four more at every other collar spacing.
- 3. Circulate hole a minimum of one complete circulation and until the drag stabilizes.
- 4. Reciprocate casing while circulating and cementing. Stop reciprocation just prior to bumping to plug.
- 5. Run bottom (red) wiper plug. Do not use if carrying L.C.M. in cement.
- 6. Pump 30 bbls. fresh water ahead of cement.
- 7. Cement with enough cement from caliper log to bring cement to surface on all intermediate casing strings.
- Run top (black) wiper plug.
- 9. Displace with fresh water.

## STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES GEOLOGICAL SURVEY DIVISION

## MINERAL WELL COMPLETION REPORT TO BE FILED WITH THE SUPERVISOR WITHIN 60 DAYS AFTER COMPLETION OF WELL (ACT 315. P.A. 1969)

SUBMIT IN TRIPLICATE

NAME OF	OWNER O	R OPER	ATOR					ADDRE	SS OF OWNER	OR OPERAT	гов			
PPG INDUSTRIES, INC.					2258 Enterprise Drive Mt. Pleasant, MI 48858									
NAME OF DRILLING CONTRACTOR					ADDRESS OF DRILLING CONTRACTOR									
INDRIL, INC.						Enterprise Pleasant, M		3						
WELL NAM	ΙE							WELL	NUMBER	PERMIT N	UMBE	R		
PPG								1052		010-85	51-3			
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Township Hersey								COUNT						
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## FORMATION RECORD

(ATTACH ADDITIONAL SHEETS IF NECESSARY)

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PPG INDUSTRIES, INC.
PPG #1052
SW-4 NW-4, NW-4, Section 26, T17N R9W
Hersey Twp., Osceola Co., MI

## (ALL TOPS SCHLUMBERGER)

	Base of Drift @ 628
628 - 832	Shale, gray to red, gummy; with sandstone, light gray, subround; coal, blocky, firm, slightly vitreous.
832 - 909	Sandstone, light gray, buff, fine grained, rounded to subrounded, poorly cemented.
909 - 1020	Shale, medium to dark gray, blocky, firm.
1020 - 1390	Sandstone, light gray, subangular, moderately well cemented; with shale, medium gray, firm; trace limestone.
	Triple Gyp @ 1390
1390 - 1462	Anhydrite, white, firm; with shale, medium to dark gray, firm.
	Brown Lime @ 1462
1462 - 1582	Limestone, medium to dark brown, very finely crystalline, slightly sucrosic; with shale, medium to dark gray.
	Stray Sandstone @ 1582
1582 - 1710	Sandstone, white, very finely crystalline, subangular, calcareous cement, becoming red.
	Marshall @ 1710
1710 - 1850	Sandstone, white to transparent, very fine grained, subangular to subround, moderately well cemented; with shale, medium gray to dark gray, firm, non-calcareous.
	Coldwater Shale @ 1850
1850 - 2582	Shale, gray to gray-blue, firm, slightly calcareous.
	Sunbury @ 2582
2582 - 2676	Shale, very dark brown to black, trace pyrite, trace spore cases, firm.

PPG INDUSTRIES, INC.
PPG #1052
SW<sup>1</sup>4 NW<sup>1</sup>4, Section 26, T17N R9W
Hersey Twp., Osceola Co., MI

## Page 2

	Ellsworth @ 2676
2676 - 3087	Shale, dark to medium gray to gray-green, soft to firm.
	Antrim @ 3087 (Began kick @ 3080')
3087 - 3256	Shale, dark brown to black, firm, very slightly calcareous, very organic.
	Traverse Formation @ 3256
3256 - 3304	Shale, dark gray to brownish-black, firm, pyritic; interbedded with limestone, brown to tan, very finely crystalline.
	Traverse Limestone @ 3304
3304 - 3878	Limestone, creme to tan, brown to dark brown toward base, very fine to finely crystalline, compact, trace intercrystalline porosity, no fluorescence or stain, argillaceous toward base.
	Bell Shale @ 3878 MD, 3832 TVD
3878 - 3942	Shale, gray, light gray, soft, non-calcareous.
	Dundee @_3942 MD, 3883 TVD
3942 - 4008	Limestone, light to medium brown, tan, microcrystalline, tight, compact, argillaceous, no visible porosity.
4008 - 4022	Dolomite, medium brown, some light brown to buff, finely to very finely crystalline, slightly argillaceous, trace stain, no fluorescence or cut, 5-7% porosity average.
	Reed City Anhydrite @ 4022 MD, 3959 TVD
4022 - 4031	Anhydrite, white, firm.
	Reed City Dolomite @ 4031 MD, 3968 TVD
4031 - 4064	Dolomite, tan to light brown to medium brown, very finely crystalline, trace sucrosic texture, 7-11% porosity, very slightly argillaceous, no fluorescence, stain or cut.
4064 - 4098	Dolomite, medium to light brown, trace dark brown 7-9%+ porosity, lighter portion very clean, no fluorescence or cut, good sucrosic porosity.

PPG INDUSTRIES, INC. PPG #1052 SW4 NW4 NW4, Section 26, T17N R9W Hersey Twp., Osceola Co., MI Page 3 Dolomite, medium brown, trace light brown, carbonaceous stain, 4098 - 4212 6% porosity, very finely crystalline, slight trace sucrosic texture, argillaceous. Detroit River Anhydrite @ 4212 MD, 4129 TVD 4212 - 4280 Anhydrite, white, firm. Detroit River Salt @ 4280 MD, 4190 TVD 4280 ~ 4741 Salt, with dolomite, light brown to brown, very fine to finely crystalline, argillaceous, very compact; with anhydrite. Sour Zone @ 4741 MD, 4603 TVD Dolomite, light to medium brown, tan, very finely crystalline 4741 - 4881to microcrystalline, compact, 3-6% intercrystalline porosity. Massive Anhydrite @ 4881 MD, 4730 TVD Anhydrite, white, firm; dolomite, tan to brown, microcrystalline, 4881 - 5141 trace stain and fluorescence, no cut. Base Anhydrite @ 5141 MD, 4965 TVD Dolomite, light to medium brown, trace gray, very finely 5141 - 5214 crystalline to microcrystalline, tight, no stain or fluorescence. Black Limestone @ 5214 MD, 5031 TVD 5214 - 5342 Limestone, dark brown to black to tan to buff, finely crystalline, trace intercrystalline porosity, argillaceous, wackstone, no stain or fluorescence. Sylvania @ 5342 MD, 5146 TVD 5342 - 5463Sandstone, light brown to buff, fine grained, well cemented, subround, calcareous cement; with abundant limestone, tan to brown. Bois Blanc @ 5463 MD, 5258 TVD

Limestone, tan to gray-brown, very fine to finely crystalline, good porosity in part; with dolomite, dark gray to gray, micro-

crystalline; trace chert.

5463 - 5621

PPG INDUSTRIES, INC.
PPG #1052
SW4 NW4, NW4, Section 26, T17N R9W
Hersey Twp., Osceola Co., MI

## Page 4

	Bass Islands @ 5621 MD, 5408 TVD
5621 - 5926	Dolomite, gray-brown to light brown, no stain or fluorescence; trace anhydrite, white.
	Salina @ 5926 MD, 5707 TVD
5926 - 5935	Dolomite, gray-brown to dark brown, microcrystalline, compact, argillaceous.
	F Unit @ 5935 MD, 5716 1VD
5935 - 5978	Dolomite, dark brown, gray, very finely crystalline, compact, argillaceous.
	F Salt @ 5978 MD, 5758 TVD
5978 - 6540	Salt, with shale, gray, soft.
	E Unit @ 6540 MD, 6317 TVD
6540 - 6660	Shale, medium gray, calcareous, firm, trace intercrystalline porosity, moderately argillaceous; with dolomite, gray-brown.
	D Salt @ 6660 MD, 6436 TVD
6660 - 6702	Salt.
	C Shale @ 6702 MD, 6477 TVD
6702 - 6794	Shale, light to medium gray, trace red; dolomite, light to medium brown to red-brown, very finely to microcrystalline.
	B Salt @ 6794 MD, 6569 TVD
6794 - 7168	Salt, massive.
	A-2 Carbonate @ 7168 MD, 6940 TVD
7168 - 7304	Limestone, medium to light brown to gray-brown to dark brown, microcrystalline, tight, argillaceous; with dolomite, medium to light brown, very finely to microcrystalline.
	A-2 Evaporite @ 7304 MD, 7076 TVD
7304 - 7662	Salt, massive.

PPG INDUSTRIES, INC.
PPG #1052
SW4 NW4, Nw4, Section 26, T17N R9W
Hersey Twp., Osceola Co., MI

## Page 5

	A-1 Carbonate @ 7662 MD, 7435 TVD
7662 - 7717	Dolomite, dark to very dark brown, very finely to microcrystalline, argillaceous, tight; limestone, medium to dark brown.
	A-1 Evaporite @ 7717 MD, 7490 TVD
7717 - 8037	Salt, massive; no anhydrite.
	Niagaran @ 8037 MD, 7810 TVD
8037 - 8052	Limestone, medium to dark brown, medium gray, very finely to microcrystalline, argillaceous, tight, dense, no stain or

fluorescence; trace of microlaminations.

### MINERAL WELL PERMIT

For a Test Well(s)

			Permit No. 0	10-851-367	
			Date Issued 2-25-85		Expires -25-85
Permission is hereby granted	to PPG Industr 2258 Enterprise D	ies, Inc. r., Mt. Plea	sant, MI		
todrill  (type of eperation) to be located inSW2_NW2	NW Section 26,		ineral Explora (type of test well(s)) ersey Township		
(weff name)	(well number)	Niagaran (formation)		no! F	RB
SPECIAL INSTRUCTIONS: CONJUNCTION WITH OIL made part of and a confusion of Wells in	ondition of this p <u>etter of Instruc</u> t	ermit. 2) We <del>ion 1 84</del>	1 <mark>1 is to be d</mark> i )) Shall use as	rilled in a sphalt pit	WINI 20 MIL. 125
underliner. Permit is subject to the provis issued by the Supervisor of M	ions and requirements of	of Act 315 PA 19	69, As Amended,	and rules, requ	uirements, or orders
SUPERVISOR (	OF MINERAL WELLS	By: , Title Add	( )ANTEL A : Co :ess:		avid H. Bechler Regulatory Contr
Please address all notification and records to:  Notifica	ons, correspondence,			D Box 30028 ansing, MI	3 48909
Cadillac Field Office				17-373-9290	)
This permit is issued on the		— NOTICE —		lo changes or	alterations are to be

- This permit is issued on the basis of the approved program outlined in the application. No changes or alterations are to be made without the permission and approval of the Supervisor of Mineral Wells or his authorized representative.
- 2. This permit, or a copy thereof, shall be posted at a conspicuous place at the well location or be in the possession of the
- 3. It is further made a requirement of this permit that the applicant (or contractor) give notice to the public utilities in accordance with Act 53, Public Acts of 1974, Compiled Laws 460.701 to 460.718 and comply with each of the requirements of the act.
- 4. An unusual, unexpected, or difficultly controllable large volume of oil, gas, brine or flowing fresh water or a condition hazardous to public health, safety, or waters of the state shall be reported immediately to the Supervisor.

Distribution: Linen-applicant—2-Lansing—3-field—4-applicant.

## FEB 1.2 1985 $m\omega = 2 - \epsilon$ Print or type information. See instruction sheet r 7500-1 before filling out application

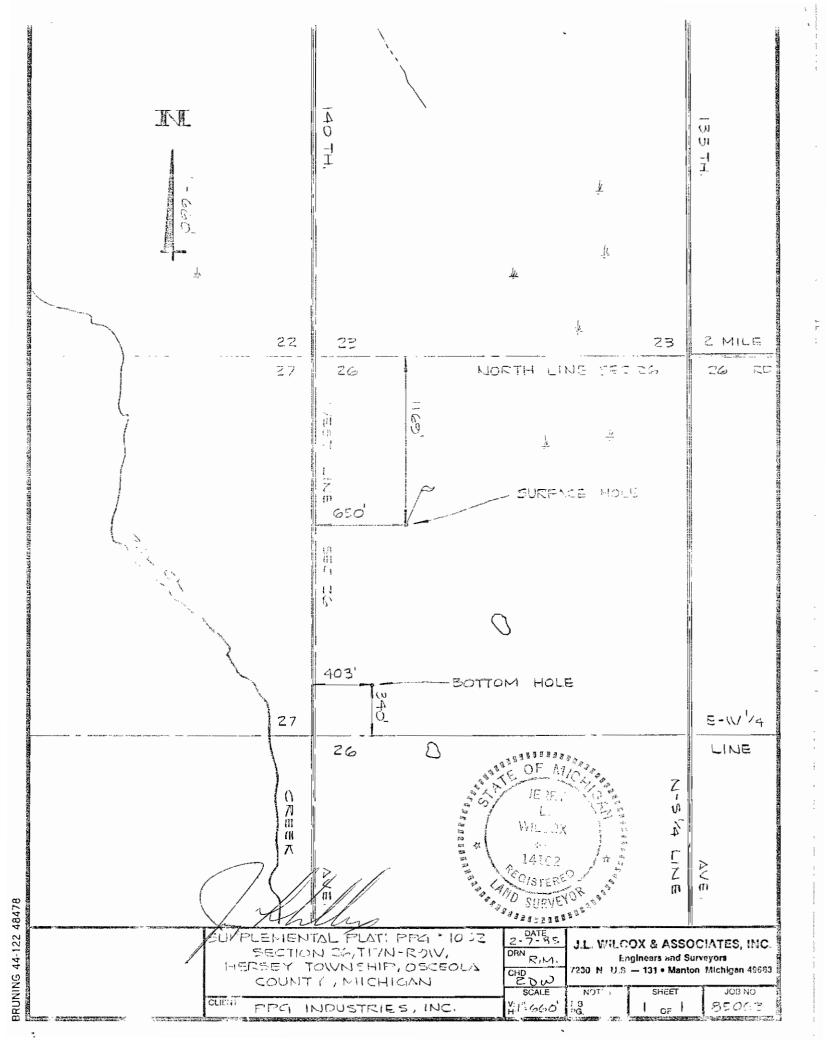
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ADDITION FOR A MINERAL WELL	DEDMIT	Drill Drill			l == = ==	210111110		
APPLICATION FOR A MINERAL WELL To Drill, Operate, Convert, or Rework	PERMIT	4. TYPE MINERA		11\	5. WELL DES		N	
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By Authority of Act 315, P. A. 1969		Hersey			1	ceola		
9. APPLICANT		ner sey			03		TELER	HONE
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28 PROGRAM OF DRILLING CONVERTING REWORKIN (See appropriate instruction sheet Attach 3 copies of pro- instruction sheet.)	IG, CASING, CE	MENTING, COMPL	ETING OF	ERATING A	ND MONITO!	RING.		
CASING PROGRAM:					INSTRUC	TION SHE	ET NO.	
Size Depth Cement				Туре	of Well	Drill-New		Rework®
				Brine		D-1		R-1
				Stora	-	D-2		R-1
				Dispo		D-3		R·1
Exhibits 1, 2, & 3 Enclosed				Test	ion Mining	D-4 D-5	X	R-1
				<b>—</b>	ork, Deepen, o			
				Hew	ork, Deapen, a	W CONVERT		, , ,
THERE WILL BE NO CHANGES IN T THE SUPERVISOR OF 29 ADDRESS CORRESPONDENCE AND PERMIT TO: PPG Industries, Inc., 2258 Enter	MINERAL WEL	LS C. ( HIS AUTHO	ORIZED RE			30	TELEF	PHONE 3-3949
		1						
MINERAL WELL SECTION USE ONLY		The Application of Act 315,	-	-	-		-	
STATUS OF BOND	0	application a		•				
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DISTRIBUTION: White — Lansing Canary — Field Pink — Applicant		FUR CASHIER'S	OSE UNLY			,	7900	2113

#### STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES GEOLOGICAL SURVEY DIVISION

SURVEY RECORD OF WELL LOCATION (Submit five copies with Application for Permit to Drill a Well for Oil or Gas, Brine Disposal, Hydrocarbon Storage or Secondary Recovery)

85063

LESSEE (OWNER	R OF LEASE RIGHTS		TNC							
LESSOR (OWNE	R OF MINERAL RIGI	PG INDUSTRIES,				WELL NO				
	tries, Inc.			(PPG #1052)		1052				
LOCATION				(**************************************						
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Hersey				Osceola						
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PLATBEL		ONE FULL SECTION	UN I	1	•					
1169'- 650 403 340	SURFACE LOCATION BOTTOM HOLE LOCATION SECTION	uare)		Outline drilling unit and spot well location on a						
	(Scale of Plat — 1 ir	ch equals 1320 ft.)			135					
A L s B. L	JE U. JE U.									
deta	riting plans for paration of an e	hazards prevent nytronmental imp	tion and er	describe all structures osion control (See instruct).	ructions and	I				
NAME OF INDIV	TOUAL WHO SURVE		rrv   Wil	COX, LS#14102 2-8-	TITLE 85 Presid	lent 5				
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PPG Industries, Inc. 2258 Enterprise Drive Mt. Pleasant, Michigan 48858 (517) 773-3949

February 11, 1985

Mr. Al Rarick Department of Natural Resources Geological Survey Division P. O. Box 30028 Lansing, MI 48909

Dear Mr. Rarick:

Re: PPG Industries, Inc. Standard Casing and Cementing Procedures

Listed below are PPG Industries, Inc. standard casing and cementing procedures:

- 1. Drive 24" pipe as deep as possible. This allows us to set 20" conductor inside if trouble occurs with washout under conductor pipe while drilling surface hole.
- 2. Drill 17 1/2" hole to to at least 100' into bedrock or to a firm footing as determined by geologist from samples.
- 3. Run 13 3/8" S.T.C. 48# Seamless H-40 casing equipped with Texas pattern weld on shoe. A float collar is set 30', or one joint, off bottom. The lower 5 joints of casing are strapped across collar in either two or three sectors. Top and bottom cement plugs with no centralizer as recommended by cementing company (see attached).
- 4. We then drill 12 1/4" hole into Bass Islands formation or the Amherstburg if local drilling shows no lost circulation zones and set 9-5/8" L.T.C. 40# N-80 and K-55 grade pipe as follows: 1,000' of N-80 on bottom; 4,000' of K-55 above N-80 with 300'-500' of N-80 @ surface. Intermediate string contains a stage collar at approximately 3,800'. This string is run with a guide shoe on bottom with float collar first joint up and all bottom 6 joints secured with Weld-A or Baker Lok or some similar material and/or strapped as described in #3 above.
- 5. Centralizers are run per cementer's recommendation attached.
- 6. For both the surface and intermediate casings, the lower joints of casing are roughened unless they appear rusty as this provides a much better bond for cement.

Sincerely,

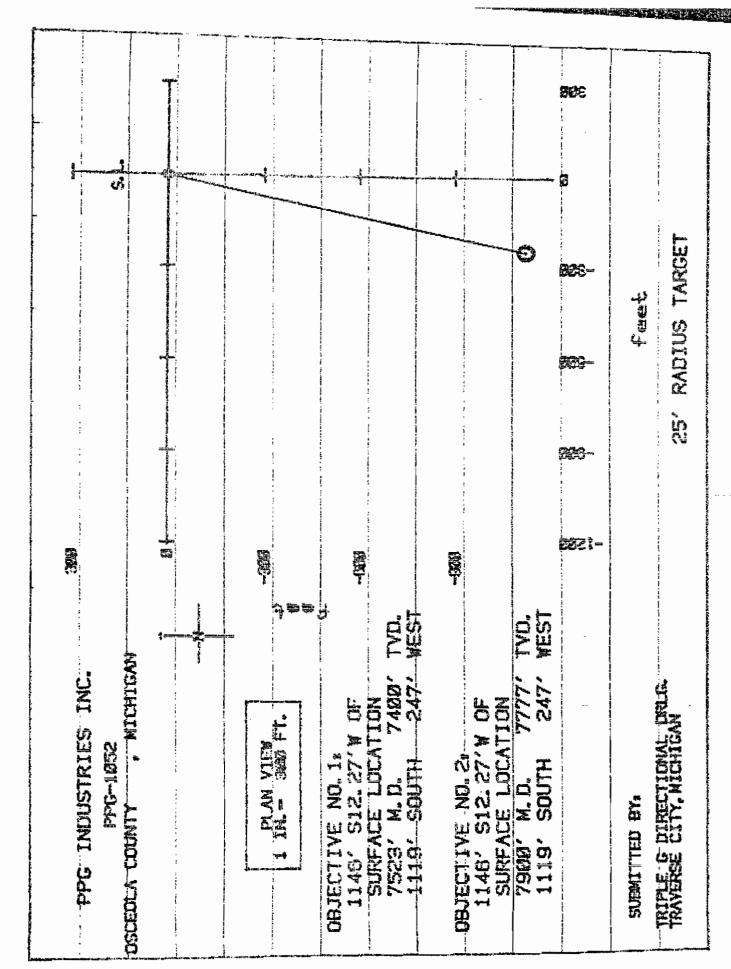
Donald P. Smith Exploration Engineer

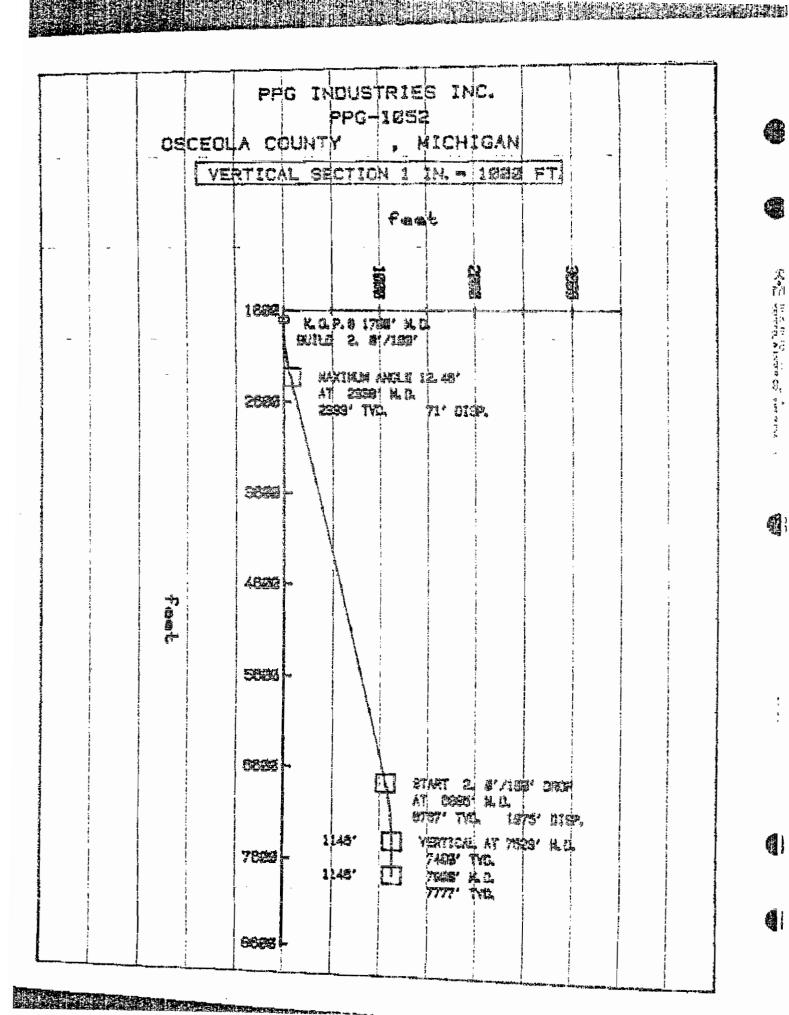
Donald Smith,

DPS/blb Attachment 1

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# STATE OF MICHIGAN MINERAL WELL OPERATORS ENVIRONMENTAL IMPACT ASSESSMENT

#### Well\_Identification

Name of Applicant: PPG Industries, Inc.

Address: 2258 Enterprise Drive

Mt. Pleasant, Michigan 48858

Well Name and Number: PPG #1052

Location: SW 1/4 of NW 1/4 of NW 1/4

Section 26, T 17 N, R 9 W Hersey Twp., Oscoola Co., Mi

#### 1. Description of Project:

An exploratory test is to be directionally drilled from a surface location 1169 feet from the North line and 650 feet from the West line of the Northwest 1/4 of Section 26. T17N. R9W, to a bottom hole location 2288 feet from the North line and 403 feet from the West line of the same Northwest 1/4. The well will be drilled to a total anticipated vertical depth of 8000 feet for the evaluation of sodium and potassium mineralization through the Niagaran Formation at this location. At the present time this project is intended for testing purposes only. A decision regarding production will be made based on an evaluation of this and other tests. The surface and bottom hole are both located in the Northwest 1/4 of Section 26, T17N, R9W, Hersey Township, Osceola County, Michigan. Surface and mineral rights for the entire Northwest 1/4 of Section 26 are in private ownership and all concerned partles have been informed of the proposed well location and advised of our intentions to complete an application for a permit to drill this mineral well.

The proposed well is part of a project involving several other wells. All wells will be drilled from a common drilling pad area. The area has already been cleared and leveled to prepare for drilling the previous wells. The land surrounding the wellsite is rolling, open, dormant field. Land use in the surrounding area is mixed agricultural and forest recreational. Natural topography at the site had been a ridge and drainage is both Northwest and Northeast. The drainage to the Northwest is toward Polick Creek while that to the Northeast is toward Bull Hill Creek. Both creeks are over 1/4 mile away and are part of the Muskegon River watershed. There are no lakes, swamps or principal streams within 1/4 mile.

ENVIRONMENTAL IMPACT ASSESSMENT - MINERAL PPG - PPG #1052
PAGE 2

Access to the location will be from the West off 140th Avenue and will utilize the existing service road. One Hundred Fortleth Avenue is a gravel surfaced county road located along the West line of Section 26.

### II. Environmental Impact Assessment:

The drilling of the test at this location should have only a minor effect on the ecological system of the vicinity. Wildlife is abundant throughout the region, but no special or endangered species are known to exist in the vicinity of the proposed project. The proposed project should have only a slight effect on future population patterns.

The proposed project is intended for exploratory investigations but may be converted for solution mining testing purposes. If converted to a test solution mining well, 7 inch casing would be set to the A-1 evaporite and cemented back to surface.

A minimal disruption to the environment will result concentrating this well in the same areas as those which have already been drilled. A total area of approximately 7 1/4 acres has been prepared for drilling all the test wells. Extensive tree removal is not necessary to clear the drilling pad. Because of the relatively large area included In the project a slight amount of earthwork was needed to level the entire area. Appropriate drillsite drainage and sedimentation control measures have been incorporated in the operational plan. These will include utilization of earthen dikes along the fill portion of the drilling pad perimeter, stabilization of slopes as needed, location of reserve pits in the cut portion of the drilling pad and utilization of a collection-infiltration basin near the Northeastern corner. We have not experienced any unusual erosional problems at this location.

PPG's plans for handling drilling cuttings and fluids are as follows:

- 1. PPG contoured the sand placed on the naturally occurring clay surface immediately east of the drilling pad to form a containment area.
- 2. A 20-mil PVC membrane was placed in the containment area. The dimensions of the PVC membrane are 90' x 160'.
- 3. A leachate collection system, utilizing 4" diameter collection pipe, was installed immediately above the 20-mil PVC membrane.

- 4. Approximately 6" to 12" of was placed above the PVC liner and compacted. Additional compacting aggregate may be added if needed for structural stability.
- 5. A four inch layer of special high-bitumen content asphalt was laid over the entire disposal area.
- 6. An asphalt dividing wall was provided across the containment area to provide separation of those cuttings which contain high quantities of salt from those which are relatively salt-free.
- During drilling of the well, PPG will utilize closed system 7. steel working pits provided with the drilling rig and a special salt-dissolving and cuttings washer system designed by PPG and utilized at previous wells. A side stream will be taken from the circulating mud system and directed through a flocculent addition system feeding a high speed centrifuge. The relatively dry cuttings will then be temporarily disposed in the above-described containment area. The clean brine will be sent back to the circulating mud system or to an approved disposal well. Excess volume generated during drilling of the well will all go through this system with the resulting brine going to an approved disposal system. The mud system remaining at the end of the well will be completely processed through this system so that the cuttings are placed in the above-described containment area and any resulting brines will be disposed in an approved disposal well.
- 8. The well will be drilled so that those solids generated above the Detroit River Salt which are relatively salt-free will be directed into one side of the containment area. At the top of the Detroit River Salt, the cuttings will then be directed into the other side of the above-described containment area, thus providing effective separation of the high salt content cuttings from those with low salt content.
- 9. It is anticipated that natural drainage of the cuttings will occur, which will result in essentially dry cuttings which will be amenable to hauling to a landfill. Our current plans are, with DNR approval, to haul the cuttings periodically to the Ottawa Farms Landfill.
- 10. The attached sketches show the rig layout and the solids containment area layout and corss-sections through each of these areas. Please note that we are also planning to asphalt pave the area under the rig and associated equipment.

ENVIRONMENTAL IMPACT ASSESSMENT - MINERAL PPG - PPG #1052
PAGE 4

Access to the wellsite will be from the West off 140th Avenue and will utilize the existing service road. No new road will need to be constructed.

Although significant concentrations of hydrogen sulfide gas are not expected, we cannot rule out the possibility of encountering this material during drilling operations. Appropriate precautionary measures, therefore, will be incorporated in the operational plan. In general, the Guidelines for Sour Oil and Gas Wells and Associated Facilities, prepared by the Interagency Sour Gas Coordinating Committee will be observed. The wellsite is well isolated from human habitation. The nearest residences are located over 1/4 mile Southwesterly of the surface location.

A temporary water well had been drilled for use in drilling the previous wells. This same water well will be used in drilling the proposed mineral well. Immediately following the drilling and completion operations of all wells which are part of this project, the well will be properly abandoned.

Upon completion of testing operations, if the well is not converted for solution mining, it will be plugged in accordance with Michigan Department of Natural Resources instructions prior to abandonment. The drilling pad area will be fine graded, stabilized, and restored to its former condition. If the well is to be converted for solution mining, it will be plugged and abandoned following its useful life. This project is expected to have only a slight effect on the immediate environment.

## III. Possible Alternatives to the Proposed Well Location:

The proposed bottom hole location has been selected on the basis of a geologic interpretation. The surface location has been chosen on the basis of an extensive on site evaluation. By drilling this test well from a common drilling pad with others, a minimum disruption of the environment will result. Preparation of the drilling pad did not require extensive tree removal. The proposed project area is well isolated from surface waters and human habitation. We believe the site is generally well suited for the undertaking of this project and that adequate protection of the environment can be maintained at this location. For these reasons, we believe that drilling the test well from the surface location proposed is the best available alternative.

ENVIRONMENTAL IMPACT ASSESSMENT - MINERAL PPG - PPG #1052 PAGE 5

### IV. Any Irreversible and Irretrievable Commitment of Resources:

The proposed project should not require a significant commitment of natural resources. The productivity of the land utilized for the drilling pad and access road will be lost during the life of the project but the surface resources of the drillsite will not be irreversibly committed. Drilling of the well will not curtail the use of the surrounding environment.

### V. Summary:

In order to minimize surface disturbances, this exploratory well is to be directionally drilled from a common surface location which has been used for other wells in this 1/4 section. The total surface area necessary for this project encompass approximately 7 1/4 acres. The drilling pad is located on rolling, generally open, dormant land. Land use in the surrounding area is mixed agricultural and forest recreational. Natural drainage from the location is both Northeasterly and Northwesterly toward tributaries of the Muskegon River. There are no surface waters within 1/4 mile of the proposed wellsite. Appropriate drill site drainage and sedimentation control measures have been included in the operational plan. Although we do not anticipate sour gas at this location, we intend to proceed as if the possibility Access to the wellsite will be from the West off exists. 140th Avenue and will utilize the existing service road. consider the environmental impact of this project to be minimal, and will make every effort to insure protection and preservation of the environment during the course of our drilling and testing operations.

Applicant's Representative

Comments by Department of Natural Resources Representative:

#### Surface Casing 13 3/8" in 17 1/2" hole

- A. Use insert float and Texas Pattern Shoe and lock to shoe joint with thread lock.
- B. No centralizers
- C. Circulate hole a minimum of one complete circulation
- D. Do not reciprocate casing
- E. Run bottom (red) wiper plug. Do not use if carrying LCM in cement.
- F. Pump 70 bbls. fresh water ahead of cement
- G. Cement with:
  - 1. 475 sx 50/50 Poz., 6% total gel, 3% CaCl<sub>2</sub> 1.54ft<sup>3</sup>/sk, 13.3#/gal, 7.66 gals/sk
  - 2. 200 sx Class "A", 3% CaCl<sub>2</sub>
    1.18 ft<sup>3</sup>/sk, 15.6#/gal, 7.66 gals/sk

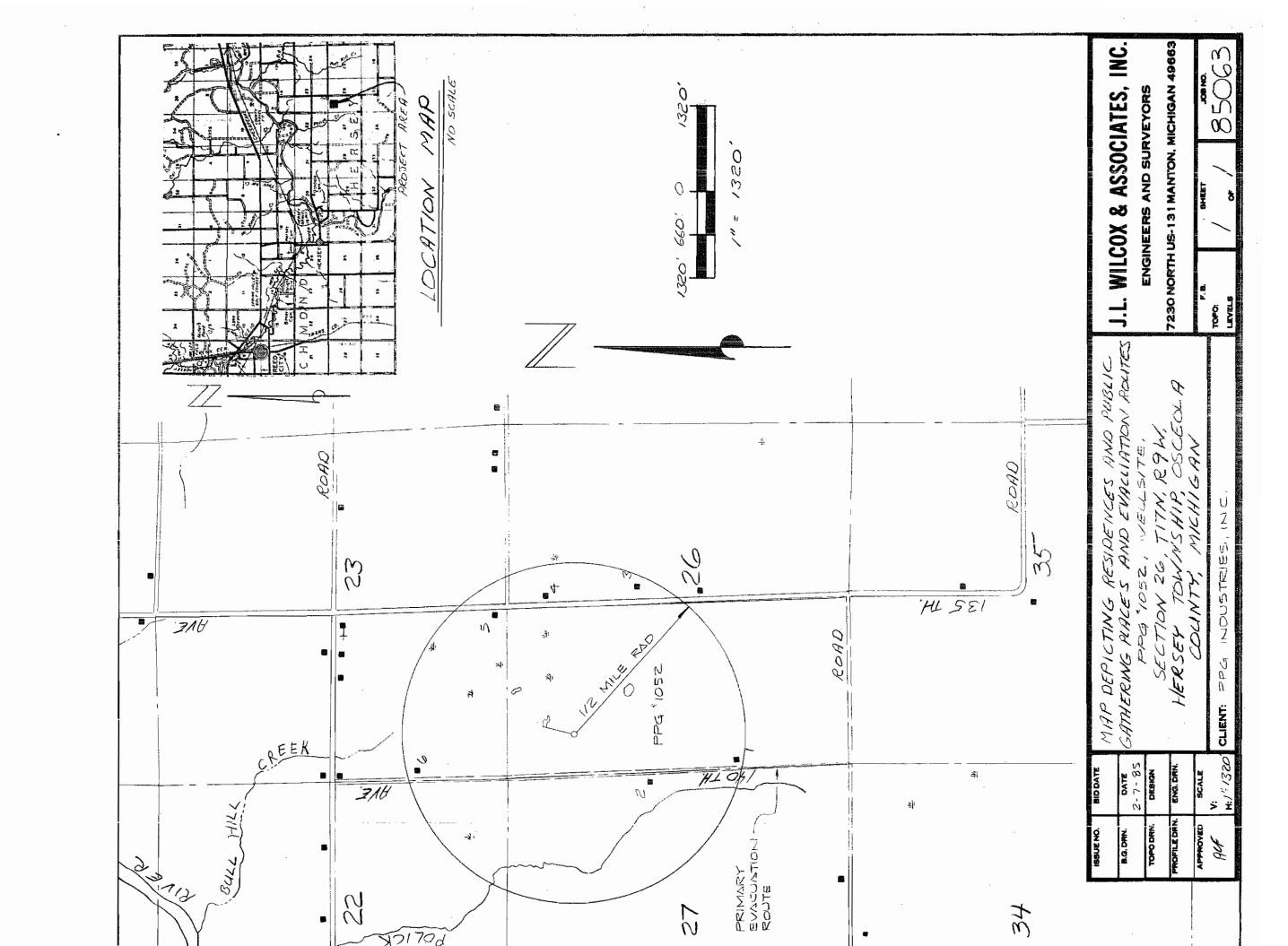
Intermediate Casing 9 5/8" in 12 1/4" hole

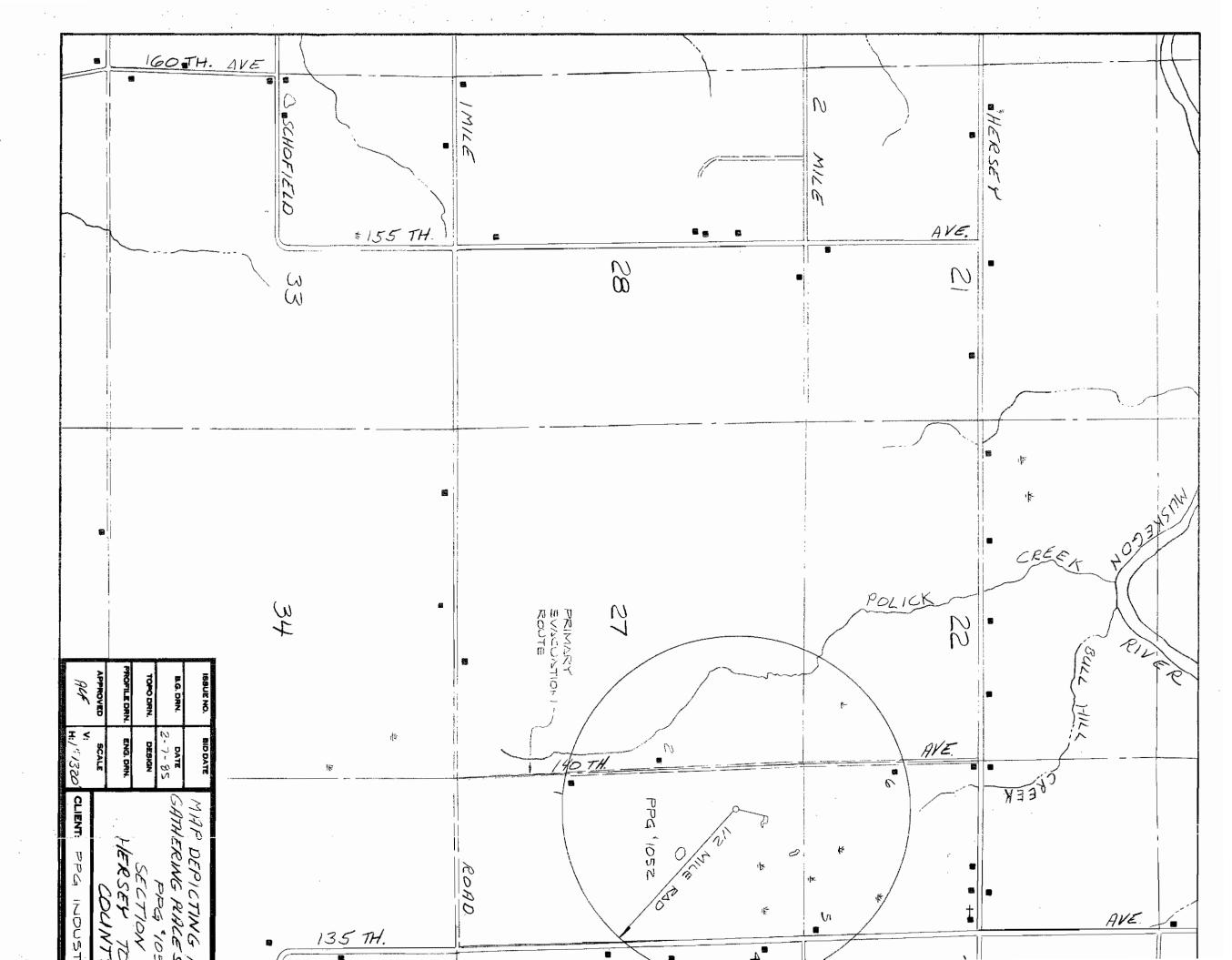
#### Recommended Procedure:

- A. Use float collar and guide shoe and lock to shoe joint with Halliburton Weld-A
- B. Run one centralizer 10' above guide shoe and four more at every other collar spacing.
- C: Circulate hole a minimum of one complete circulation and until the drag stabilizes.
- D. Reciprocate casing while circulating and cementing. Stop reciprocation just prior to bumping top plug.
- E. Run bottom (red) wiper plug. Do not use if carrying LCM in cement.
- F. Pump 30 bbls. fresh water ahead of cement.
- G. Cement with enough cement from caliper log to bring cement to surface on all intermediate casing strings.
- H. Run top (black) wiper plug.
- Displace with fresh water.

Casing Equipment: (9 5/8")

Regular guide shoe, float collar with auto fill, Halliburton weld-A (2), Centralizers (5)





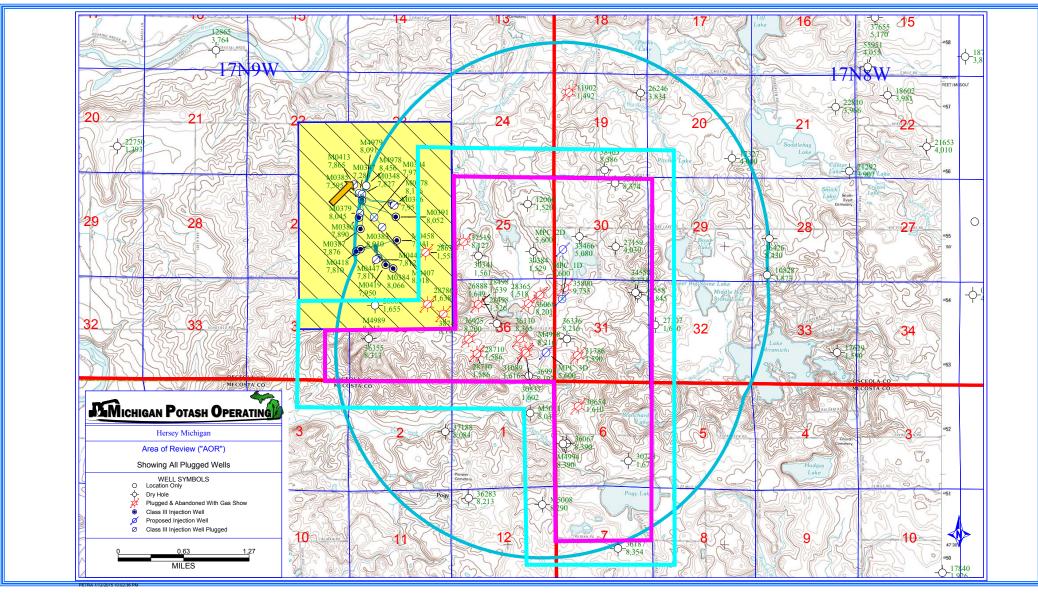
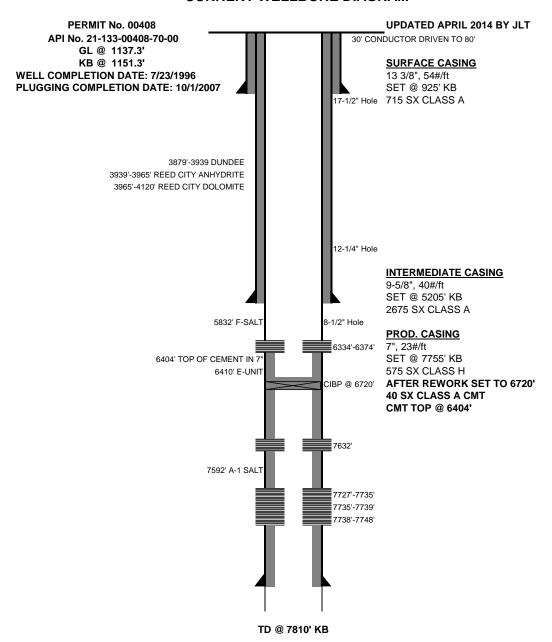


Figure B4. Map showing all plugged wells, shallow (that do not penetrate any confining horizon) or deep (that penetrate confining horzion) within the area of review. Total Depths are listed. There are several shallow Michigan Stray wells that do not penetrate the injection or confining horizon.

#### **KALIUM 2032**

## SW NW SW Sec 26 T17N R9W OSCEOLA COUNTY, MI

#### **CURRENT WELLBORE DIAGRAM**



#### KALIUM 2032 WELL HISTORY

	KALIUM 2032 WELL HISTORY
<u>DATE</u>	DESCRIPTION
6/28/1996 7/20/1996	SPUD. DRILLING COMPLETED.
7/23/1996	13 3/8" SET AT 925'; 715 SX CLASS A 9 5/8" SET AT 5205'; 2675 SX CLASS A 7" SET AT 7755'; 575 SX CLASS H WELL COMPLETED.
2/5/1997 2/13/1997	REWORK COMMENCED. REMOVE D-LINER. RERUN TUBING. PFC INJECTION POINT 7738'. REWORK COMPLETED.
2/13/1997	
3/26/1997 3/31/1997	REWORK COMMENCED. REMOVE TUBING. RUN OCHL. LOG. INJECTION POINT 7738'. REWORK COMPLETED.
5/28/1997	REWORK COMMENCED. REMOVE TUBING. CLEAR TUBING. RERUN TUBING. INJECTION POINT 7738'. BEWORK COMPLETED.
5/28/1997	REWORK COMPLETED.
9/15/1997	REWORK COMMENCED. REMOVE TUBING. PERFORATE CASING FROM 7735'-7739'. RERUN SPEARED TUBING TO 7760'.
9/15/1997	REWORK COMPLETED.
1/13/1998 2/14/1998	REWORK COMMENCED. TRIP TUBING STANDING. RUN THL. SAT HIGH. RUN SB/CCL. PULL LAYING. RUN FLAT BOTTOM MILL. MILL FROM 7748'-7765'. PULL LAYING. RUN THL TO 7760'. REWORK COMPLETED.
2/27/1998	REWORK COMMENCED.
3/13/1998	TRIP TUBING STANDING. STRING PARTED. RUN OVERSHOOT. TUBING STUCK. RUN FREEPOINT. WORK TUBING. RETRIEVE 5 JTS THEN 8 JTS THEN 7 JTS. RUN W.D. PIPE. WASH TO 2000'. LAY DOWN 2-7/8 THEN W.D. TO 4100'. LAYDOWN 2-7/8. PULL REMAINDER OF THL. RUN THL. LAND BOTTOM AT 7760'. REWORK COMPLETED.
4/14/1998	REWORK COMMENCED.
4/15/1998	TRIP THL STANDING. PERFORATE 7" CASING 7727'-7735'. RERUN THL. LAND BOTTOM AT 7735' BY TALLY. REWORK COMPLETED.
5/5/1998	REWORK COMMENCED. TRIP THL STANDING. PERFORATE 7" CASING 7717'-7727'. RERUN THL. LAND BOTTOM AT 7703' BY TALLY.
5/8/1998	REWORK COMPLETED.
5/26/1998	REWORK COMMENCED. TRIP THLP STANDING. RERUN THL. LAND BOTTOM AT 7760' BY PFC.
5/28/1998	REWORK COMPLETED.
11/17/1998	REWORK COMMENCED. PULL THL STANDING. PERF 7685'-7695'. TRIP IN HOLE WITH THL. LAND THL AT 7685.5'. REMORK COMPLETE.
11/19/1998	REWORK COMPLETED.
12/10/1998 12/12/1998	REWORK COMMENCED. PULL THL STANDING. RUN MILL. MILL FROM 7672'-7720'. RERUN THL. LAND BOTTOM AT 7718'. REWORK COMPLETED.
2/17/1999 2/18/1999	REWORK COMMENCED. LINER DAMAGED. TRIP STANDING. CHANGE LINER JOINT AND PFC. LOWER LINER 31'. REWORK COMPLETED.
6/29/1999 7/14/1999	REWORK COMMENCED. PULL THL STANDING. TUBING STUCK. SHO W/STRING SHOT @ 7680', 7651' & 5750' - CAME FREE. TRIP OUT LAYING. TRIP IN REWORK COMPLETED.
9/9/1999	REWORK COMMENCED. PULL THL. LOST 2 JNTS. TRIP IN HOLE. MILL 7599'-7750'. TRIP OUT. MAKE UP J-SLOT & MANDRILL. TRIP IN. LINER PLUGGED. UNPLUG PIPE. TRIP IN.
9/23/1999	REWORK COMPLETED.
7/11/2001	REWORK COMMENCED. RIG UP. RUN IN HOLE W/SEVERING TOO SHUT OFF AT 7600'. DIDN'T PART. RUN 2ND SEVERING TOOL - SHUT OFF AT 7190'.
7/31/2001	REWORK COMPLETED.
1/21/2002	REWORK COMMENCED. PARTED 7" CASING AT 2000". RAN CASING PATCH TO REPIAR. MIT.
1/21/2002	REWORK COMPLETED.
1/19/2005	REWORK COMMENCED.
1/21/2005	PIPE WAS PARTED AT 2300'. RAN O.D. CASING PATCH AND PATCHED PIPE AT 2312'. MIT. REWORK COMPLETED.
10/10/2006	REWORK COMMENCED. PULL 4-1/2" CASING. SET BRIDGE PLUG @ 6720'. RUN LOGS. SET 40 SX PLUG. SECTION MILL 7" CASING 6374'-6384'. PERFORATE CASING FROM 6334-6374.
1/10/2007	REWORK COMPLETED.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY WASHINGTON, D.C. 20460 WELL REWORK RECORD NAME AND ADDRESS OF CONTRACTOR NAME AND ADDRESS OF PERMITTEE Mosaic Potash Hersey Mosaic Potash Hersey 1395 135th Ave 1395 135th Ave Hersey, Mi 49639 Hersey, Mi 49639 STATE COUNTY PERMIT NUMBER Locate Well and Outline Unit on M Osceola MI-133-3G-A002 Section Plat - 640 Acres SURFACE LOCATION DESCRIPTION SE 1/4 of NW 1/4 of SW 1/4 0f Section 26 Township 17N Range 9W LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT Surface 898 ft From (N/S) Location Line of Quarter Section And 1319 ft From (E/W) Line of Quarter Section **WELL ACTIVITY** Total Depth Before Rework TYPE OF PERMIT Brine Disposal Ε 7755 Individual Total Depth After Rework Enhanced Recovery ✓ Area 6404' Hydrocarbon Storage Date Rework Commenced Number of Wells \_23 Solution Mining Weli Number 2032 Lease Name 10/10/2006 Date Rework Completed S 1/10/2007 WELL CASING RECORD - BEFORE REWORK Cement Perforations Casing Acid or Fracture Type From Size Depth Sacks Treatment Record 30 90 Driven 13 3/8 925 715 9 5/8 5205 2675 Α A 7642 575 7632 7 7755 WELL CASING RECORD - AFTER REWORK (Indicate Additions and Changes Only) Perforations Cement Casing Acid or Fracture Sacks Type From Treatment Record Size Depth Τo 40 Α 6334 6374 Cement Top @ 6404" 7 6720 WIRE LINE LOGS, LIST EACH TYPE **DESCRIBE REWORK OPERATIONS IN DETAIL** Log Types **USE ADDITIONAL SHEETS IF NECESSARY** Logged Intervals Pull 4 1/2 inch casing-set bridge plug @ 6720-Run Logs- Set 40 sack plug- Section mill 7 CBL\_GAMMA 0-6720 inch casing 6374-6384-Perforate casing from 6334-6374. TEMP\_GAMMA 0-6720 CERTIFICATION I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and Imprisonment. (Ref. 40 CFR 144.32) NAME AND OFFICIAL TITLE
ROBERT SCHOLESTZER Robert Schweitzer PRODUCTION AND MINING SUPERINTENDENT

	1111-0111-01		NT OF ENVIRONMENT				
		:ATION TO:		Permit number		Type of well	
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	PLUG AND A			API number			
	by authority of Part 615						
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iaisincat	nor or this information ma	ay result in lines	and/or imprisoriment	Mosaic Pota	sh Hersey		
☐ Par	rt 615 Oil or Gas Well	⊠ P	art 625 Mineral Well	1395 135 <sup>th</sup> A	ve		
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Plug ba	ack 🔲 Perforate	☐ Tempor	arily abandon	Well name and		<del></del>	
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1 salt tail propo	7592  psed procedures: ge plug at 6750 - Ce cavity development	Hative):	OR OFFICE OF GEOLOG	Current minir horizon (K+N eet of fill-Sectio	ng (a) In mill casing from	Date of Market	
aii propo et bridg d start	7592  psed procedures: ge plug at 6750 - Ce cavity development	Hative):	OR OFFICE OF GEOLOG	Current minir horizon (K+N eet of fill-Sectio	ng (a) In mill casing from	PECE	4 2.06 VED
1 salt  aii propo et bridg d start  Q additio	7592  psed procedures:  ge plug at 6750 - Ce cavity development  attitude (authorized represedure)  ponal requirements:  port F/Ray Vuc.  231-775-3960	Aative): FO  GRINOVICH  X (6342)	OR OFFICE OF GEOLOG (517 ZAI 153 AT LIEAST ZA	Current minir horizon (K+N eet of fill-Section	on mill casing from  SE ONLY  TO SETTING	PECE	6 2.06 0 2000
1 salt  tail proport et bridg d start  Q additio	posed procedures:  ge plug at 6750 - Ce cavity development  fun fundaments:  prair requirements:  prair requirements:  prair Ray Vuc	Stative):  FO  STANOVICH  X (6342)  Be Production to	OR OFFICE OF GEOLOG (517 ZAI 153 AT USAST ZAI ests to commence within	Current minir horizon (K+N eet of fill-Section	on mill casing from  SE ONLY  TO SETTING	Date of Market	6 2.06 0 2000
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1 salt  ail proposit bridg d start  addition  addition  addition  addition	psed procedures: ge plug at 6750 - Ce cavity development  ponal requirements:  TIFY Ray Vuc.  No Not applicable No Service company  DEC:	Stative):  FO  STANOVICH  X (6342)  Be Production to	OR OFFICE OF GEOLOG  (517 ZAI 153  AT LEAST ZA  ests to commence within the filed  Office:	Current minir horizon (K+N eet of fill-Section	on mill casing from  SE ONLY  TO SETTING	PECE  AND  ENVIRONMEN  OFFICE OF GEOL  Termina	6 2.06 0 2000

EQP 7200-6 (rev 8/2004) side 1

in I

			NT OF ENVIRONMENTA	L QUALITY - OF	FICE OF GEOLOGICA		
D€Ð		ATION TO:		Permit number Type of well			
	CHANGE WE			M-408		Solution Mining	1
	PLUG AND A			API number			
	by authority of Part 615 S						
	s, of Act 451 PA 1994 as ion of this information ma				ess of permittee		
_		_	·	Mosaic Pota			
Par	t 615 Oil or Gas Well	🔀 Pa	art 625 Mineral Well	J 1395 135 <sup>th</sup> A	ve		
Change of	well status requested to:			Hersey, Mich	nigan 49639		
☐ Piug ba	ick Perforate		rily abandon	Well name and	number		
☐ Convert			Raise horizon	2032			
Last produc	ction/injection rate and ty	pe of fluid		Well location			
Brine @	250 q.p.m.			SW 1/4 of NV	W 1/4 of SW 1/4	Section 26 T 1	17n R9w
Brief descri	iption of project			Township		County	
Raise so	lution mining horizor	n from A-1 sait	t to the F-salt.	Hersey		Osceola	
				Date drilling cor	npleted	Date last produce	d/utilized
				20/7/96		13/11/05	
Work to be	oone by					Starting date	
Mosaic H	lersey					01/04/06	
	•		CASING AND CEN	MENTING RECOR	RD		
Hole dia	Casing dia & wt/ft	Depths set		t quantity, type, a		Cement top	Perforations
17 1/2	13 3/8-54.5#	925	715 sacks class A	<del>-</del>		surface	ļ
12 1/4	9 5/8-40#	5205	2675 sacks class			Surface	
8 1/2	7- 23#	7755	575 sacks class F	4		5500 Feet	7632
1							
Formation i	record (formation and de	oth of top, oil, gas	and water shows, etc.):			•	·
formation	depth	Measured					
F-salt	5832	Measurea		Proposed mir	nina		
E-unit	6410			horizon (Na c			
	0110			Tiotizon (Tia	,,,,,		
i 							
A-1 salt	7592			Current minir	na		
7 C. Odit	7002			horizon (K+N			
				110112011 (17714	ω,		
Detail propo	osed procedures:						
	je plug at 6750 - Ce	ment with clas	es A. coment 300 fo	et of fill-Section	n mill casing from	6400-6410- Bur	tuhina etrina
	cavity development.		33 A Cement 500 le	et of this decito	ir iiiiii casiiig itoiii	0400-0410-11ui	r tubing string
and start	cavity development.						
ĺ							
ĺ							
	(5	<del></del>					
Name/sign	ture (authorized represe	płative):				Date	1 2 11
flui	Min Huges	7				MASE	h 2.06
-		F0	R OFFICE OF GEOLOG	BICAL SURVEY U	ISE ONLY		,
DEQ addition	onal requirements:	GRINOVICH	(517 ZAI 153	Z) ANO M	likeMoss	RECE	IVED
(2	onal requirements: OTHEY RAY WO	× 6342)	AT LEAST 24	HRS PRIOR	TO SETTING	MAR 0	8 2006
	BRIDGE PLUG						**************************************
	No Not applicab		ests to commence within	10 days of compl	etion and to be filed	ENVIRONMEN OFFICE OF GEOL	OGICAL STIEURY
	<del></del>	y records are to b					_
Approved by	y DEQ: i > ~	1/	Office:		Approval date:	Termina	tion Date:
	Kaymono	Vyymove	TANSIN	G .	3/14/2006	3/14	12007
	Cubm	oridinal and the	as (2) copies of this cost	ination to the Dist	riot Office within 60 de	ve efebonae of well	atatus.

Submit original and three (3) copies of this application to the District Office within 60 days of change of well status. Note: Three copies of Record of Well Plugging or Change of Well status (EQP 7200-8) and any requested service company records are to be filed within 60 days of completion at the District Office.

		UNITED S	TATES ENVIR	RONMENTAL P	ROTECTION	AGENCY		Ì	
			WASH	IINGTON, DC	20460				
EPA _			WELL	REWORK RE	CORD				
NAME AND A	ADDRESS O	F PERMITTEE		NAME AND AD	DRESS OF C	ONTRACTOR			
Mosaic Potas	h Hersey		j <sub>i</sub>	Mosaic Potash Hersey					
1395 135th A	venue			1395 135th Avenue					
Hersey, MI 4	19639		Į,	Hersey, MI 49639					
		TLINE UNIT ON		COUNTY PERMIT NUMBER					
	N PLAT 64	!	į	Osceola		MI-133-3G-A00	)2		
	N	<del></del>	SURFACE LO	CATION DESC	RIPTION				
			SE 1/4 of NW	1/4 of SW 1/4	of Sec 26 To	wnship 17N Ra	nae 9W		
<del>                                   </del>							ection and drilling unit		
<del>       </del>			200410 1101111				oonen und anning anni		
$ _{w}$		<del>├</del> ┤─┤ <sub>€</sub> │	Surface Loca	tion 898 ft from	n North Line	and 1319 ft from	m West I Ine		
l <sup>vv</sup>		<del>   </del>	of quarter sec		ii (tostii Line	and 1515 K no	iii West Line	1	
	┝╌╁╌┼╌	<del>                                     </del>	WELL ACTIV		Total Donth	Before Rework	TYPE OF PERMIT		
×   -	<del>┤┤</del> ┼┼	<del>     </del>			· ·				
<del>      -</del>	+++	<del>   </del>	Brine Dis	•	7800		Individual		
<b>       </b>	ــــــــــــــــــــــــــــــــــــــ			d Recovery	Total Depth A		_x Area		
	S		· ·	bon Storage	7800		Number of Wells 23		
			xx Sol'n l	vining		Commenced			
			Lease Name		1/19/2005		Well Number		
ļ					Date Rework Completed			2032	
				····	1/21/2005				
		1	-	RECORD - BE	-	•			
C	asing	Cemen		Perforatio			Acid or Fracture		
Size	Depth	Sacks	Туре	From	То	T	reatment Record		
30	80	Driven							
13 3/8	925	715	Lite A						
9 5/8	5205	2675	Lite A						
7	7739	575	Poz/h						
					I				
300033000	WELI	L CASING RECO	RD - AFTER I	REWORK (Indi	cate Addition	s and Changes	Only)		
C	asing	Cemer	ıt .	Perforatio	ńś	1	Acid or Fracture		
Size	Depth	Sacks	Туре	-		reatment Record			
	1				<u> </u>				
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	1								
	<u> </u>								
		<u> </u>		!					
D	ecribe rew	ork operations in	detail	•	·	Wire line logs	, list each type		
1		i sheets if neces			Log Ty		Logged intervals		
		Ran O.D. casing		tched nine	CCL	763	0-5205'		
		Hall O.D. Casing	pateri and pa	torieu pipe	TOOL TOOL		0-5205		
at 2312'. MIT				· · · · · · · · · · · · · · · · · · ·	<u> </u>				
<u> </u>					ļ				
				APATI-12.1-1	1				
				CERTIFICATION					
1 '	•	-	-				n submitted in this		
•			_				nsible for obtaining		
the inform	nation, I belie	eve that the inform	na <b>ti</b> on is true, a	accurate, and c	omplete. I am	aware that ther	e are significant		
penaitie	es for submitt	ting false informa	tion, including	the possibility o	f fine and imp	risonment. (Rei	. CFR 144.32).		
NAME AND	OFFICIAL TI	TLE (Please type	or print)	SIGNATURE			DATE ŞIGNED		
Robert C Sc	hweitzer			P. 1 +	C X1	with	2/9/25		
Minefield and	d Production	Superintendent		where	v,	- A	1 1100		

	_						•		
		UNITED	STATES ENV	/IRONMENTAL	PROTECTION	AGENCY			
			WA	SHINGTON DC	20460				
EPA				L REWORK RE			-		
		OF PERMITTEE		NAME AND ADDRESS OF CONTRACTOR					
IMC Kalium,				IMC Kalium Ltd					
1395 135th				1395 135th A					
Hersey, MI				Hersey, MI 4	49639				
		JTLINE UNIT ON			COUNTY PERMIT NUMBER				
SECTIO	N PLAT 6 N	40 ACRES	MI	Osceola OCATION DES		MI-133-3G-A0	02		
l —									
-	<u> </u>	$\sqcup$	_SE1/4 of _NW1/4 of _SW1/4 of 1/4 of Section26_ Township17N Range9W_						
l			Locate well i	n two directions	from nearest li	nes of quarter s	ection and drilling unit		
		1-1-1							
W		<del>                                     </del>	1			e of quarter sec	etion		
<u> </u>				from (E/W) W			1		
X		111	WELL ACTIV		1	lefore Rework	TYPE OF PERMIT		
- -	<del>                                     </del>		Brine D	•	7760		Individual		
				ed Recovery	Total Depth A	fter Rework	_X_Area		
	<u> </u>		- ·	arbon Storage	7760		Number of Wells_17_		
			X Sol'n M		Date Rework	Commenced			
			Lease Name		7/11/2001		Well Number		
			Kalium Hersey		Date Rework Completed		2032		
			<u> </u>		7/31/2001				
		<del></del>		RECORD - BE					
	asing	Cemer	r —	Perforation		·	Acid or Fracture		
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	7739	575	Н						
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De	scribe rewor	k operations in d	etail			Wire line logs, li	st each type		
		sheets if necess		ŀ	Log Type		Logged intervals		
		ering tool-shut of		n't part	CCL CCL	5	Logged intervals		
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Land liner @7		-	are training @7.	200-7100.					
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Licertify unde	er the penalt	v of law that I ha				the information	submitted in this		
							sible for obtaining		
		e that the inform							
		ng false informat							
		LE (Please type		SIGNATURE ,	7		DATE SIGNED		
(yle Barbot		(	F <b>-</b>	1	former a marine	- I			
Minefield Supervisor				111	The same of the sa		11-16-01		

		UNITED	STATES ENVI	RONMENTAL I	PROTECTION	AGENCY			
			WAS	HINGTON DC	20460				
EPA			WEL	L REWORK RE					
NAME AND	ADDRESS (	OF PERMITTEE		NAME AND A	DDRESS OF C	ONTRACTOR			
IMC Kalium,	Ltd			IMC Kalium Ltd					
1395 135th	Avenue			1395 135th Avenue					
Hersey, MI	49639			Hersey, MI 49639					
LOCATE WE	ELL AND OU	ITLINE UNIT ON	STATE	COUNTY		PERMIT NUME	BER		
SECTIO	N PLAT 64	40 ACRES	МІ	Osceola		MI-133-3G-A00	)2		
	N		SURFACE LO	CATION DESC	CRIPTION				
			_SE1/4 of _N	<u>W</u> 1/4 of <u>SW</u> 1/	4 of 1/4 of 8	Section26_ Tow	nship <u>17N</u> Range <u>9W</u>		
, <del>                                     </del>			Locate well in two directions from nearest lines of quarter section and drilling unit						
w		††† <sub>E</sub>	Surface Local	tion_898ft from	(N/S)_NLine	e of quarter sec	tion		
		++-	and 1319 ft.	from (E/W)_W_	line of quarter s	section			
X			WELL ACTIV		Total Depth B		TYPE OF PERMIT		
			Brine Dis	sposal	7760		Individual		
	<del>          -</del>		·	d Recovery	Total Depth At	ter Rework	X_Area		
<u> </u>	<u> </u>	<u>1    </u>	1	rbon Storage	7760		Number of Wells_17_		
	-		X Sol'n Mir	•	Date Rework	Commenced			
			Lease Name	<b>3</b>	1/21/2002  Date Rework Completed		  Well Number		
			Kalium Herse	v			2032		
				<i>;</i>	1/21/2002				
		W	L FIL CASING I	RECORD - BEF		<			
C	asing	Cemen		Perforation			Acid or Fracture		
Size	Depth	Sacks	Туре	From	То		reatment Record		
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9 5/8	5205	2675	A						
7	7739	575	Н			· · · · · · · · · · · · · · · · · · ·			
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Ca	sing	Cement		Perforations			Acid or Fracture		
Size	Depth	Sacks	Туре	From			reatment Record		
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		k operations in di sheets if necessa			Wire line logs, list each Log Types Logged		Logged intervals		
				r MIT	CCL CCL	•	Logged illicivals		
-arted / casi	ing at W 200	0 ft. Ran casing	paton to repail	1. 19(1.1	OOL				
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		ments and that b		-					
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-		ng false informati			fine and imprise				
NAME AND C	FFICIAL TIT	LE (Please type	or print)	SIGNATURE	F		DATE SIGNED		
Kyle Barbot				A STATE OF THE PARTY OF THE PAR		,	422-02		
Ainafiald Supr	envisor				· · · · · · · · · · · · · · · · · · ·				

### DEᡚ

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY - GEOLOGICAL SURVEY DIVISION

DE 1	Permit number	Well type	Current true vertice	eal depth			
REQUEST FOR TRANSFER OF PERMIT	M-408	Brine Prod.	7556				
	Well name and number						
Required by authority of Part 615 Supervisor of Wells or Part 625	Kalium Hersey 2032						
Mineral Wells, Act 451 PA 1994 as amended Non-submission and/or falsification of this information may result in fines and/or imprisonment	Surface location						
laisincation of this information may result in lines and/or imprisonment	SE 1/4 NW	1/4 SW 1/4	Section 26 T	17N R9W			
Part 615 Oil/Gas Well Part 625 Mineral Well	Township		County				
	Hersey		Osceola				
NOTE: Eligibility for permits is conditioned upon compliance with the statute	s, rules and orders of th						
not be transferred to persons not in compliance. A permit for a well shall no							
conditions at the well site until compliance is achieved. The acquiring permit This permit does not convey property rights in either real estate or ma							
private or public rights nor does it waive the necessity of seeking feder							
TRANSFER OF	A PERMIT FROM:						
Name(s) of Selling Permittee(s)	ATERMITITION		Fed ID#orSS	; #			
Kalium Chemicals, Limited			38-3545577				
Address: Number and Street, City or Town, State, ZIP Code Telephone							
1395, 135th Avenue			231-832-375	5			
Hersey, MI, 49639							
All permits rights and responsibilities are discharged by:			<i>i</i>				
		176	// /				
Kalium Chemicals, Limited Colin Howard				16/04/2001			
Permittee Authorized representativ	e name	Signatu	re •	Date			
Permittee Authorized representativ	е лате	Signatu	ite	Date			
Permittee Authorized representativ	e name 	Signatu	re	Date			
	OF A PERMIT TO:						
Name(s) of Acquiring Permittee(s):			Fed 1D# or S.S	; #			
IMC Potash Hersey Inc		Visit of Miles but a first on the Children of Miles	ME0132184				
Address: Number and Street, City or Town State ZIP Code			Telephone				
1395. 135th Avenue			231-832-375	5			
Hersey Ml. 49639		1 ( 11	- 15 1015 - C 11 1-2111-				
(We are) (I am) an owner or authorized representative of the owner of the wabandonment in conformity with the law regulations and orders	ell under this permit and	assume full respor	sibility for the drilling	ig, operation, and			
	al Bank of Canada						
- · · · · ·	087C00008	Amount \$2	25,000				
Statement of Financial Responsibility	0007 000000	Amount	20,000				
All permittee rights and responsibilities are assumed by:							
The political rights and response mines are assumed by.		1	// )				
IMC Potash Hersey Inc. Colin Howard				16/04/2001			
IMC Potash Hersey Inc. Colin Howard Permittee Authorized representativ				10/04/2001			
reinnitee Authorized representativ	e name	Signatu	re .	Date			
Permittee Authorized representativ	e name	Signatu	re	Date			
remittee Audionzeu representativ	e name	Signatu	re	Date			
Permittee Authorized representativ		Signatu		Date Date			
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Permittee Authorized representativ  Permittee Authorized representativ	e name e name RONMENTAL QUAL	Signatu Signatu ITY USE ONLY D Y 0 8 2001	re  istribution by DEQ Lansing  S	Date  Date  Date  Telling Owner			
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EQP 7200-7 (Rev 3/99)

Mail Original and 3 copies to:

GEOLOGICAL SURVEY DIVISION
MICHIGAN DEPT OF ENVIRONMENTAL QUALITY

PO BOX 30256 LANSING MI 48909-7756

RAYV

		UNITED	STATES ENVI	IRONMENTAL I	PROTECTION	AGENCY				
			WAS	HINGTON, DC	20460					
EPA WELL REWORK RECORD										
NAME AND	ADDRESS C	OF PERMITTEE		NAME AND A	DDRESS OF C	CONTRACTOR				
IMC Kalium	Ltd			IMC Kalium L	td		į			
1395 135th A	lve∩ue			1395 135th A	enue					
Hersey, MI	49639			Hersey, MI 4	19639					
	-	TLINE UNIT ON	STATE	COUNTY		PERMIT NUM	BER			
	N PLAT 64		MI	Osceola		MI-133-3G-A0	0.40.55			
=====================================	N N			OCATION DES	CRIPTION	100 00 710	11100			
						Section26 To	wnship17N Range9W			
l <del>    -   -   -   -   -   -   -   -   - </del>	<del></del>			_SE1/4 of _NW1/4 of _SW1/4 of _ 1/4 of Section26_ Township17N Range9W						
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-	<del>                                     </del>		10 of a character 2007 ( (N/O) N) - 1/ of a continuo							
W		E E	Surface Location 898ft. from (N/S) N Line of quarter section							
- -				from (E/W)_W_						
<u> </u> X			WELL ACTIV		1	lefore Rework	TYPE OF PERMIT			
			Brine Di	•	7760		Individual			
			Enhance	ed Recovery	Total Depth A	ifter Rework	_X_Area			
	S		Hydroca	rbon Storage	7760		Number of Wells_17_			
			_X_ Sof'n Mi	ning	Date Rework	Commenced				
			Lease Name		09/09/1999		Well Number			
			Kalium Herse	Y	Date Rework	Completed	2032			
			ļ	•	09/23/1999	·				
		N	VELL CASING	RECORD - BE		RK				
C	asing	Cemer		Perforation	****		Acid or Fracture			
Size	Depth	Sacks	Туре	From	То	-	Treatment Record			
30	80	Driven	1 1,500	170111	1		Teather record			
13 3/8		715			<u>!</u>					
	925		A							
9 5/8	5205	2675	A							
7	7739	575	Н							
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		L CASING REC		·	-					
	sing	Cemer		Perforations			Acid or Fracture			
Size	Depth	Sacks	Туре	From	To T		reatment Record			
De	scribe rewor	k operations in o	detail			Wire line logs,	list each type			
		sheets if necess			Log Types		Logged intervals			
		in hole. Mill 759		out. Make	g · )F					
		in. Liner plugge								
up 0-0:0t u 11	101101 III. 111p I	m. Emer plagge	a. Onpidg pipe	. mp iii.			OCT 1 8 1999			
					<u> </u>		30, 20,000			
				OF DETICION THE			GEOLOGICAL SURVEY DIV.			
					am familiar wit		ENVIRONMENTAL QUAL TY on submitted in this			
document a	ind all attach	ments and that,	based on my i	inquiry of those	individuals imr	nediately respo	onsible for obtaining			
the inform	ation I belie	ve that the inform	nation is true	accurate, and c	omplete. I am	aware that the	re are significant			
penaities	s for submitti	ing false informa	ition, including	the possibility of	of fine and impr	risonment. (Re	f. CFR 144.32).			
		TLE (Please type		SIGNATURE			DATE SIGNED			
Kyle Barbot		3.	·	A		>	16 17 60			
Minefield Sup	ervisor			0111			10-16-19			
				<del>\(\frac{1}{2}\)</del>						

		UNITED :	STATES ENVI	RONMENTAL	PROTECTION	AGENCY		
			WAS	HINGTON, DC	20460			
EPA			WEL	L REWORK RE	CORD			
NAME AND	ADDRESS (	OF PERMITTEE		NAME AND A	DDRESS OF C	ONTRACTOR		
IMC Kalium.	Ltd			IMC Kalium, L	td			
1395 135th A	Avenue			1395 135th Avenue				
Hersey, MI	49639			Hersey, MI 4	19639			
LOCATE WE	LL AND OU	TLINE UNIT ON	STATE	COUNTY		PERMIT NUME	BER	
SECTIO	N PLAT - 6	40 ACRES	М	Osceola		MI-133-3G-A00	2 M408	
	N		SURFACE LO	OCATION DES	CRIPTION			
						Section26_Tow	nship <u>17N</u> Range <u>9W</u>	
			<u>SE</u> 1/4 of <u>NW</u> 1/4 of <u>SW</u> 1/4 of <u>1/4 of Section26</u> Township <u>17N</u> Range <u>9W</u> Locate well in two directions from nearest lines of quarter section and drilling unit					
			1					
w		HE	Surface Loca	tion 898ft from	(N/S) N Lin	e of quarter sec	tion	
			1	from (E/W)_W				
X			WELL ACTIV			efore Rework	TYPE OF PERMIT	
			Brine Di	snosal	7760		Individual	
		<del>                                     </del>	<u> </u>	ed Recovery	Total Depth A	fter Rework	X Area	
<u> </u>	<u>                                     </u>			rbon Storage	7760		Number of Wells 17	
		THE STATE OF THE S	Nollow	_	Date Rework	Commenced		
			Lease Name	19	06/29/1999	ÇEMMIE (IC <b>EU</b>	Well Number	
			Kalium Herse		Date Rework Completed		2032	
			Nahum nerse	У	07/14/1999		2032	
TO THE RESIDENCE THE PARTY OF T	- The second second second second second second second second second second second second second second second		ITI L CACINO	RECORD - BE				
		Cemer					A sid or Erecture	
Size	asing		,	Perforation	To	Acid or Fracture  Treatment Record		
	Depth	Sacks	Туре	From	10	'	Teaurient Record	
30	80	Driven		// ************************************	1			
13 3/8	925	715	A	<u> </u>			A-10/A/F-11-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-	
9 5/8	5205	2675	A		<u> </u>		- 10 - 10 - 10 - 10 - 10 - 10 - 10 - 10	
7	7739	575	H				- A	
				551425144			N-1-A	
		L CASING REC	(A)					
	sing	Cemer		Perforations		Acid or Fracture		
Size	Depth	Sacks	Туре	From	То	I	reatment Record	
<b>.</b>			1		ļ <u>-</u>			
				_				
							· · · · · · · · · · · · · · · · · · ·	
		rk operations in o				Wire line logs,		
		sheets if necess	<u> </u>		Log Type	es	Logged intervals	
		stuck. Shot w/s						
		out laying. Trip is		e Fish.				
Recovered al	l but 7jnts. I	Mill 7630' - 7750'	·					
				CERTIFICATION				
I certify und	ier the penal	ty of law that I h	ave personally	examined and	am familiar wil	h the informatio	n submitted in this	
			-				nsible for obtaining	
							e are significant	
penaltie	s for submitt	ing false informa	tion, including	the possibility	of fine and imp	risonment. (Ref		
NAME AND	OFFICIAL TI	TLE (Please typ	e or print)	SIGNATURE	//		DATE SIGNED	
Kyle Barbot					1/	>	8/m/AS	
Minofield Sun	on door						\ \(\langle \l	

		UNITED	STATES ENV	RONMENTAL	PROTECTION	AGENCY	RECEIVE
			WAS	HINGTON, DC	20460		
EPA			WEL	L REWORK RE	CORD		MAR 1 7 199
NAME AND	ADDRESS (	OF PERMITTEE		NAME AND A	DDRESS OF (	CONTRACTOR	MAK 1 1 1999
IMC Kalium	Ltd			IMC Kalium, L	td.	GEOLOGICAL SUBVE	
1395 135th /				1395 135th A	GEOLOGICAL SURVEY ENVIRONMENTAL QUAL		
Hersey, MI	49639			Hersey, MI 4	19639		
LOCATE WE	ELL AND OU	TLINE UNIT ON	STATE	COUNTY		PERMIT NUM	
SECTION PLAT 640 ACRES MI Osceola						MI-133-3G-A0	02 <u>M408</u>
	N SURFACE LOCATION DESCRIPTION						
			vnship <u>17N</u> Range <u>9W</u>				
			Locate well in	two directions	from nearest li	ines of quarter s	ection and drilling unit
			i				
W		E	Surface Loca	tion <u>898</u> ft from	ı (N/S) <u>N</u> Lin	e of quarter sec	etion
			and <u>1319</u> ft.	from (E/W) <u>W</u>			
X			WELL ACTIV	'ITY	Total Depth B	Before Rework	TYPE OF PERMIT
			Brine Di	sposal	7760		Individual
			Enhance	ed Recovery	Total Depth A	After Rework	X_Area
	S		Hydroca	rbon Storage	7760		Number of Wells_17_
			X Sol'n Mi	ning	Date Rework	Commenced	1
			Lease Name		2/17/99		Well Number
l			Kalium Herse	y	Date Rework	Completed	2032
					2/18/99		]
		v	VELL CASING	RECORD - BE	FORE REWOR	RK	
C	asing	Cemer	nt	Perforation	is	I	Acid or Fracture
Size	Depth	Sacks	Туре	From	То	1 т	reatment Record
30	80	Driven					1
13 3/8	925	715	А				
9 5/8	5205	2675	Α		i		
7	7739	575	Н				
_							
	WEL	L CASING REC	ORD - AFTER	REWORK (Ind	icate Additions	and Changes (	Only)
Ca	asing	Cemer		Perforation			Acid or Fracture
Size	Depth	Sacks	Туре	From	To	1 т	reatment Record
30	80	Driven					
13 3/8	925	715	Α				
9 5/8	5205	2675	A				,
7	7739	575	Н	7727	7735	4 SH/FT	
× 1000				1.12			
De	scribe rewor	k operations in o	detail			Wire line logs,	list each type
		sheets if necess			Log Type		Logged intervals
		ding. Change lin		FC. Lower			
liner 31'.		<u>g</u>					
				_			-
				CERTIFICATION	DN		<del></del>
Leertify und	ier the nenal	tv of law that ! h	ave personally			th the informatio	n submitted in this
							nsible for obtaining
							re are significant
		ing false informa			•		
		TLE (Please typ		SIGNATURE			DATE SIGNED
Paul McMille		. LL (i-lease typ	o or print)	110	NV MILLE	?_	
Minefield Sur				par	in cimes i		03/09/99
Amiliandia Ont	7C1 413OL			,			

		UNITED	STATES ENVI	RONMENTAL	PROTECTION	AGENCY			
			WAS	HINGTON, DC	20460				
EPA				L REWORK RE	CORD				
NAME AND	ADDRESS (	OF PERMITTEE		NAME AND A	DDRESS OF C	CONTRACTOR			
IMC Kalium	Ltd	IMC Kalium Ltd.							
1395 135th A	Avenue			1395 135th Avenue					
Hersey, MI	49639			Hersey, MI 4	9639				
LOCATE WE	LL AND OU	TLINE UNIT ON	STATE	COUNTY		PERMIT NUME	BER		
SECTIO	N PLAT 64	40 ACRES	MI	Osceola		MI-133-3G-A00	12 <u>M408</u>		
	N		SURFACE LO	OCATION DES	CRIPTION				
			_SE1/4 of _N	<u>W</u> 1/4 of <u>SW</u> 1/	4 of 1/4 of	Section <u>26</u> Tow	nship <u>17N</u> Range <u>9W</u>		
			Locate well in	two directions	from nearest li	nes of quarter s	ection and drilling unit		
w [] [		E	Surface Local	tion <u>898</u> ft from	n (N/S) <u>N</u> _Lin	e of quarter sec	tion		
			and <u>1319</u> ft. t	from (E/W) <u>W</u> _	line of quarter	section			
×			WELL ACTIV	ITY	Total Depth B	efore Rework	TYPE OF PERMIT		
			Brine Dis	sposal	7760		Individual		
			Enhance	ed Recovery	Total Depth A	fter Rework	X_Area		
	S		Hydroca	rbon Storage	7760		Number of Wells 17		
			X Sol'n Mi	oing	Date Rework	Commenced			
			Lease Name		12/10/98		Well Number		
1			Kalium Herse	у	Date Rework	Completed	2032		
					12/12/98				
		V	ELL CASING	RECORD - BE	FORE REWOF	RK			
C	asing	Cemen	t	Perforation	S		Acid or Fracture		
Size	Depth	Sacks	Туре	From	To Treatment Record				
30	80 Driven						٠.		
13 3/8	925	715	Α						
9 5/8	5205	2675	Α						
7	7739	575	Н						
	WEL	L <b>C</b> ASING REC	ORD - AFTER	REWORK (Indi	icate Additions	and Changes C	Only)		
Ca	sing	Cemen	t	Perforation	s	,	Acid or Fracture		
Size	Depth	Sacks	Type	From	То	T	reatment Record		
30	80	Driven	_						
13 3/8	925	715	Α						
9 5/8	5205	2675	Α						
7	7739	575	Н	7727	7735	4 SH/FT			
De	scribe rewor	k operations in c	letail			Wire line logs, l	ist each type		
		sheets if necess			Log Type	es	Logged intervals		
Pull THL stan	ding. Run m	nill. Mill from 76	72' <b>-</b> 7720'. Re	erun THL,			the Action (Alberta   Berlin Land   Berlin Land		
Land bottom	at 7718'.								
		_							
			<u> </u>	CERTIFICATIO	)N				
I certify und	er the penall	ty of law that I ha	ave personally	examined and	am familiar wit	h the information	n submitted in this		
document a	nd all attach	ments and that	based on my i	nquiry of those	individuals imr	nediately respor	nsible for obtaining		
the informa	ation, I belie	ve that the inforn	nation is true, a	accurate, and c	omplete. I am	aware that there	e are significant		
		ng false informa		the possibility o	of fine and impr	isonment. (Ref	. CFR 144.32).		
NAME AND C	OFFICIAL TI	TLE (Please type	or print)	SIGNATURE			DATE SIGNED		
Paul McMiller	1				Mille		01/09/98		
Minefield Sup	ervisor			Tane.	1011100	~	01/01/18		

		UNITED	STATES ENVI	RONMENTAL	PROTECTION	AGENCY	
			WAS	HINGTON, DC	20460		
EPA			WELI	REWORK RE	CORD		
NAME AND	ADDRESS C	OF PERMITTEE		NAME AND A	DDRESS OF	CONTRACTOR	
IMC Kallum	Ltd			iMC Kalium, L	.ta.		
1395 135th A	Avenue			1395 135th A	venue		
Hersey, MI	49639			Hersey, MI	49639		
LOCATE WE	LL AND OU	TLINE UNIT ON	STATE	COUNTY		PERMIT NUM	BER
SECTIO	N PLAT - 64	40 ACRES	MI	Osceola		MI-133-3G-A00	12 M408
	N		SURFACE LO	CATION DES	CRIPTION		
			_SE1/4 of _N	W1/4 of SW1	/4 of 1/4 of	Section <u>26</u> Tow	nship <u>17N</u> Range <u>9W</u>
			Locate well in	two directions	from nearest	lines of quarter s	ection and drilling unit
w III		E	Surface Local	tion <u>898</u> ft from	n (N/S) <u>N</u> Li	ne of quarter sec	tion
			and 1319 ft. 1	from (E/W) W	line of quarter	section	
X			WELL ACTIV	ITY	Total Depth	Before Rework	TYPE OF PERMIT
			Brine Dis	sposal	7760	0	Individual
			Enhance	d Recovery	Total Depth	After Rework	X Area
	S			rbon Storage	7760		Number of Wells 17
			X Sol'n Min	ning	Date Rework	Commenced	
			Lease Name	-	11/17/98		Well Number
			Kalium Herse	v	Date Rework	Completed	2032
			·	•	11/19/98	•	
		v	VELL CASING	RECORD - BE			
С	asing	Cemer		Perforation			Acid or Fracture
Size	Depth	Sacks	Туре	From	То		reatment Record
30	80	Driven	1				
13 3/8	925	715	A			1	
9 5/8	5205	2675	A		1		
7	7739	575	Н		1	İ	
		0.0					
	WEL	L CASING REC	ORD - AFTER	REWORK (Inc	licate Addition	s and Changes (	)nlv)
Ca	asing	Cemer		Perforation			Acid or Fracture
Size	Depth	Sacks	Туре	From	To	-1	reatment Record
30	80	Driven	Type	FIOIII	10	<del> </del>	reatment Necord
13 3/8	925	715	Α			<del> </del>	
9 5/8	_	2675	A				
7	5205		Н	7707	7726	4 SH/FT	
	7739	575	<u>                                    </u>	7727	7735	1 4 30/71	and the second s
	li	<u> </u>	i			Mira lina lara	lot cach type
		rk operations in o			le-To-	Wire line logs,	
		sheets if necess		UI Isad	Log Typ	Jes	Logged intervals
		7685 - 7695'. Trip	in noie with i	HL. Lang	G/N Log		7756-7490
THL at 7685.	J						
			-	CERTIFICATI			
							n submitted in this
			•			-	nsible for obtaining
					-	n aware that ther	
					of fine and imp	orisonment. (Ref	
		TLE (Please type	e or print)	SIGNATURE		" /2	DATE SIGNED
Paul McMiller	n			1.0	Mel.	Wolfz	12/23/98
Minefield Sur	pervisor			ran	~ /n /	-	1 ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,

JAM 8 1968

		UNITED	STATES ENVI	RONMENTAL	PROTECTION	AGENCY	
			WAS	HINGTON DC	20460		
EPA			WELI	REWORK RE			
NAME AND	ADDRESS C	F PERMITTEE		NAME AND A	DDRESS OF C	CONTRACTOR	
IMC Kalium	Ltd			IMC Kalium L	_td		
1395 135th A	Avenue			1395 135th A	venue		
Hersey, MI	49639			Hersey, MI	49639		
LOCATE WE	ELL AND OU	TLINE UNIT ON	STATE	COUNTY		PERMIT NUM	BER
SECTIO	N PLAT 64	10 ACRES	MI	Osceola		MI-133-3G-A0	02
	N			DCATION DES			
							vnship <u>17N</u> Range <u>9W</u>
			Locate well in	two directions	from nearest li	ines of quarter s	section and drilling unit
w LLL		Ε	Surface Local	tion <u>898</u> ft fron	n (N/S) <u>N</u> Lir	ne of quarter sec	ction
			and 1319_ft.	from (E/W) <u>W</u>	line of quarter		
X			WELL ACTIV	ITY	Total Depth 8	Before Rework	TYPE OF PERMIT
			Brine Dis	sposal	7760		Individual
				ed Recovery	Total Depth /		X_Area
	S			rbon Storage	7760		Number of Wells_18_
			X Sol n Mi	ning	Date Rework	Commenced	
			Lease Name		5/26/98	<u> </u>	Well Number
			Kalium Herse	ÿ	Date Rework	Completed	2032
					5/28/98	<u> </u>	
			WELL CASING	RECORD - BE	FORE REWO	RK	
C	asing	Ceme	nt	Perforation	ns	_	Acid or Fracture
Size	Depth	Sacks	Туре	From	То		Treatment Record
30	80	Driven					
13 3/8	925	715	A				
9 5/8	5205	2675	A				
7	7739	575	Н				MAIN THE STATE OF
						<u> </u>	
	WEL	L CASING REC	CORD - AFTER	REWORK (Inc	dicate Additions	s and Changes	
C	asing	Ceme	nt	Perforatio		_	Acid or Fracture
Size	Depth	Sacks	Type	From	To		Freatment Record
30	80	Driven			IAA-TAHOO-O-O/AV		
13 3/8	925	715	Α				
9 5/8	5205	2675	Α				
7	7739	575	Н	7727	7735	4 SH/FT	
	<u> </u>		!				
De	escribe rewo	rk operations in	detail			Wire line logs,	<del>, ''</del>
Us	se additional	sheets if neces	sary		Log Typ	es	Logged intervals
Trip THLP st	ding, Rerun	THL. Land bott	om at 7760' by	PFC.	G/N Log		7756-7490
_							
				CERTIFICATI	ION		
I certify un-	der the pena	lty of law that I I	have personally	examined and	d am familiar wi	th the information	on submitted in this
document	and all attach	nments and that	based on my	inquiry of those	e individuals im	mediately respo	onsible for obtaining
the inform	nation I belie	eve that the info	rmation is true	accurate and	complete 1 an	n aware that the	re are significant
pen <u>a</u> ltie	es for submitt	ting false inform	ation, including	the possibility	of fine and imp	risonment. (Re	f. CFR 144.32).
NAME AND	OFFICIAL TI	ITLE (Please typ	pe or print)	SIGNATHRE			DATE SIGNED
Paul McMille	en			1 1/2 1	2 mills	with.	06/02/98
Minefield Su	pervisor			raw	- m no		001-2110

<b>a</b> .		UNITED	STATES ENVI	RONMENTAL I	PROTECTION	AGENCY			
			WAS	HINGTON, DC	20460				
EPA			WELI	L REWORK RE	CORD				
NAME AND A	DDRESS O	F PERMITTEE		NAME AND A	DDRESS OF C	CONTRACTOR			
IMC Kailum I	_td			IMC Kalium L	td				
1395 135th A	venue			1395 135th A	- <del></del>				
Hersey, MI 4	19639			Hersey, MI 4	-				
		TLINE UNIT ON	STATE	COUNTY		PERMIT NUMI			
	N PLAT 64		MI	Osceola		MI-133-3G-A00			
3201101	N	O NOI (LO		CATION DES	MOITGIO	1411-100-00-701			
	$\exists$		1			Section26 Tow	nship <u>17N</u> Range <u>9W</u>		
,			_				ection and drilling unit		
						•	<b>y</b>		
lw <del>       </del>		<del>- - </del> E	Surface Local	tion 898ft from	(N/S) N Lin	e of quarter sec	tion		
· ·		<del></del>		from (E/W) <u>W</u>					
X		<del></del>	WELL ACTIV			lefore Rework	TYPE OF PERMIT		
<del>   ^ </del>		<del>- - </del>	Brine Dis		7760		Individual		
, <del>   - - </del> -			<del></del>	ed Recovery	Total Depth A		X Area		
	S		i——	rbon Storage	7760		Number of Wells 18		
	ت		X Sol'n Mi	_	Date Rework		INUITIDEI OI WEIIS 10		
ı				ning	· ·		) Mall Niumbar		
1			Lease Name		5/5/98		Well Number		
İ			Kalium Herse	У	Date Rework	•	2032		
-			<u> </u>		5/8/98		i		
				RECORD - BE			<u>-</u>		
	esing	Cemei	7	Perforation		4	Acid or Fracture		
Size	Depth	Sacks	Type	From	То	<u> </u>	reatment Record		
30	80	Driven							
13 3/8	925	715	A						
9 5/8	5205	2675	<u> </u>						
7	7739	575	H						
				REWORK (Ind	licate Additions	and Changes (			
Ca	sing	Cemei	nt	Perforation	ıs		Acid or Fracture		
Size	Depth	Sacks	Туре	From	То	Т	reatment Record		
30	80	Driven		•					
13 3/8	925	715	A						
9 5/8	5205	2675	Α						
7 ′	7739	575	Н	7727	7735	4 SH/FT			
De	scribe rewor	k operations in	detail			Wire line logs,	list each type		
Us	e additional :	sheets if necess	sary		Log Typ	es	Logged intervals		
Trip THL stdir	ng. Perforate	e 7' casing 7717	<mark>" - 7727'</mark> . Reτι	ın THL.					
Land bottom	at 7703 by T	ally.							
				CERTIFICATION	ON				
I certify und	er the penalt	ty of law that I h	ave personally	examined and	am familiar wi	th the informatio	on submitted in this		
document a	nd all attach	ments and that	based on my	inquiry of those	individuals imi	mediately respo	nsible for obtaining		
the inform	ation I belie	ve that the infor	mation is true,	accurate, and o	complete. I am	aware that the	re are significant		
penalties	s for submitti	ng false informa	ation, including	the possibility	of fine and imp	risonment. (Re	f. CFR 144.32).		
		TLE (Please typ		SIGNATURE			DATE SIGNED		
Paul McMiller		,	. ,		Wille	<i>11/11</i>	15/1/1/2-		
	ervisor			1/01	11/1/19		05/14,98		

		UNITED	STATES ENVI	RONMENTAL	PROTECTION	AGENCY	
			WAS	HINGTON, DC	20460		
EPA			WELI	L REWORK RE	CORD		
NAME AND	ADDRESS C	F PERMITTEE		NAME AND A	DDRESS OF C	CONTRACTOR	_
IMC Kalium	Ltd			IMC Kalium L	.td		
1395 135th /	Avenue			1395 135th A	venue		
Hersey, MI	49639			Hersey, MI 4	19639		
		TLINE UNIT ON	STATE	COUNTY		PERMIT NUM	BER
ŀ	N PLAT 64		MI	Osceola		MI-133-3G-A00	
	N			OCATION DES	CRIPTION	1111 100 00 1101	MATERIAL MATERIAL STREET, STRE
	<del>1 1 7 1 -</del>			<u>W</u> 1/4 of <u>SW</u> 1/		Section26 Tow	nship <u>17N</u> Range9W
							ection and drilling unit
		<del>-   -  </del>	Locate Well III	I IWO GILECTIONS	Itom nearest ii	nes or quarter s	ection and drawing drift
\.,	<del>                                     </del>		0	000 <del>0</del> 5	- (NI/O) NI II:-	6	No.
w		E	1		·	e of quarter sec	igon
		<del></del>		from (E/W) W			
X			WELL ACTIV	• •		Before Rework	TYPE OF PERMIT
			Brine Dis		7760		Individual
			1	d Recovery	Total Depth A		X Area
	S		Hydroca	rbon Storage	7760		Number of Wells_18_
		<del></del>	X_ Sol'n Mii	ning	Date Rework	Commenced	1
			Lease Name		4/14/98		Well Number
			Kalium Herse	у	Date Rework	Completed	2032
					4/15/98		
		V	VELL CASING	RECORD - BE	FORE REWOR	RK	
C	asing	Cemei	nt .	Perforation	1S		Acid or Fracture
Size	Depth	Sacks	Туре	From	То	4	reatment Record
30	80	Driven	17,60			1	
13 3/8	925	715	A				
9 5/8	5205	2675	A				<del></del>
7	7739	575	Н	!		1	<del></del>
	1 7733	373	1	l i		1	
	10/51	L CARING DEC	OPD AFTER	DEWORK (See	i liento Additiona	i and Changes (	Dalu
<u> </u>							Acid or Fracture
	asing	Cemei		Perforation =	7	1	
Size	Depth	Sacks	Туре	From	То	<u> </u>	reatment Record
30	80	· Driven					
13 3/8	925	715	A				
9 5/8	5205	2675	Α				
7	7739	575	Н	7727	7735	4 SH/FT	
	<u> </u>				1		
De	escribe rewor	k operations in	detail	_		Wire line logs,	list each type
Ü	se additional	sheets if necess	sary		Log Typ	es	Logged intervals
Trip THL stdi	ing. Perforate	e 7' casing 7727	" - 7735'. Reru	ın THL,	SB/CCL		7600-7740
<u> </u>	at 7735 by T	<del>_</del>			PFC		7600-7748
		<b>,</b> -					
				CERTIFICATION	ONI		
1 aa-444	dos tha man-!	المحادثة المراقع الم	aua naraaan	<b>5-4</b> ,		th the information	a aubmittad in this
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			•				nsible for obtaining
					•		re are significant
					of fine and imp	risonment. (Ref	
		TLE (Piease typ	e or print)	SIGNATURE		_	DATE SIGNED
Paul McMille	n			1/20	Mr Nill	<i>?</i>	05/01/98
Minefield Su	pervisor			pour.	w poor	$\sim$	54/5.7 /8

		ONLIED			PROTECTION	AGENCY			
				HINGTON DC					
EPA				REWORK RE		01/7010705			
		F PERMITTEE			DDRESS OF C	ONTRACTOR			
IMC Kalium, I				IMC Kalium L					
1395 135th A		1395 135th Avenue Hersey, MI 49639							
Hersey, MI 4					9639		_		
LOCATE WE	LL AND OU	TLINE UNIT ON	STATE	COUNTY		PERMIT NUMI			
SECTION	N PLAT 64	0 ACRES	Mi	Osceola		MI-133-3G-A00	02		
	N		1	CATION DES					
						_	nship <u>17N</u> Range <u>9W</u>		
			Locate well in	two directions	from nearest li	nes of quarter s	ection and drilling unit		
w 🗌 📗		E	Surface Locat	ion <u>898</u> ft from	n (N/S) <u>N</u> Lin	e of quarter sec	tion		
			and <u>1319</u> ft, f	rom (E/W) <u>W</u>	line of quarter	section			
X			WELL ACTIVI	TY	Total Depth B	efore Rework	TYPE OF PERMIT		
			Brine Dis	posal	7760		individual		
			Enhance	d Recovery	Total Depth A	fter Rework	_X_Area		
	S		Hydrocar	bon Storage	7760		Number of Wells_16		
			X Soin Mir	ning	Date Rework	Commenced	1		
			Lease Name		2/27/98		Well Number		
			Kalium Hersey	y	Date Rework	Completed	2032		
				•	3/13/98				
		V	VELL CASING	RECORD - BE	FORE REWOR	RK			
C	asing	Cemer	nt	Perforation	ns		Acid or Fracture		
Size	Depth	Sacks	Туре	From	То	1	reatment Record		
30	80	Driven					100000000000000000000000000000000000000		
13 3/8	925	715	Α		1		······································		
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7	7739	575	Н				• • • • • • • • • • • • • • • • • • • •		
		0.0							
	WFI	L CASING REC	ORD - AFTER	REWORK (Inc	licate Additions	and Changes	Only)		
Ca	sing	Cemer		Perforation			Acid or Fracture		
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7	7739	575	H	7735	7739	4 SH/FT			
<u> </u>	7739	373		,,,,,	7,700	- 0.2.1			
	secribe rewer	k operations in (	detail	<u> </u>		Wire line logs,	list each type		
!		sheets if necess			Log Typ		Logged intervals		
		g parted. Run o		ning stuck	SB/CCL		7600-7740		
							7600-7748		
		ng. Retrieve 5 J			PFC		7000-7740		
		2000ft, Laydov			7760				
4100'. Laydo	<u>wπ ∠</u> //8. Pt	ull remainder of	IRL, KUN IRL						
	) N	lk . ad law the state		CERTIFICATI		h the inferret	on pubmitted in this		
							on submitted in this		
							onsible for obtaining		
							re are significant		
					of fine and imp	risonment. (Re	of, CFR 144.32).		
		TLE (Please typ	e or print)	SIGNATURE			DATE SIGNED		
Paul McMille				60	where	2	03/24/98		
Minefield Sup	pervisor			1au	no nou		3.3. ,0		

		UNITED	STATES ENVI	RONMENTAL:	PROTECTION	AGENCY	
			WAS	HINGTON DC	20460		
EPA			WELI	L REWORK RE	CORD		1
NAME AND	ADDRESS O	F PERMITTEE		NAME AND A	DDRESS OF C	ONTRACTOR	
IMC Kalium,	Ltd			IMC Kalium L	td		
1395 135th A	Avenue			1395 135th A	venue		
Hersey, MI	49639			Hersey, MI 4	19639		
LOCATE WE	ELL AND OU	TLINE UNIT ON	STATE	COUNTY		PERMIT NUMI	BER
SECTIO	N PLAT - 64	0 ACRES	мі	Osceola		MI-133-3G-A00	02
	N		SURFACE LO	DCATION DES	CRIPTION		
			SE1/4 of N	W1/4 of SW1/	4 of 1/4 of	Section26 Tov	vnship <u>17N</u> Range9W
							ection and drilling unit
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w H		E	Surface Local	tion 898ft from	n (N/S) N Lin	e of quarter sec	etion
"			i	from (E/W) W			
X			WELL ACTIV	` ' <del></del>	-,	efore Rework	TYPE OF PERMIT
		<del>-   -  </del>	Brine Dis		7760	CIOIC ACTION	Individual
				ed Recovery	Total Depth A	fter Reyork	X Area
	<u>l l l l l</u> S		1	rbon Storage	7760	ILET IVEMOLK	Number of Wells 16
	<u> </u>			•		Commonand	Inditibel of Wells_10
			X_ Sol'π Mi	nıng	Date Rework	Commenced	latest bloom) and
			Lease Name		1/13/98	O. 1.4.4	Well Number
			Kalium Herse	У	Date Rework	Completed	2032
			15.1.0.0010		2/14/98		
				RECORD - BE	• 14		
	Casing	Cemer		Perforation			Acid or Fracture
Size	Depth	Sacks	Type	From	То	1	reatment Record
30	80	Driven	<u> </u>				
13 3/8	925	715	Α				
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7	7739	575	Н				
				<u>.</u>		<u> </u>	
	WEL	L CASING REC	ORD - AFTER	REWORK (Inc	licate Additions	and Changes (	Only)
Ca	asing	Cemer	nt	Perforation	ns		Acid or Fracture
Size	Depth	Sacks	Туре	From	То	Τ	reatment Record
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	1			İ	1		
D۴	escribe rewor	k operations in	detail		ļ .	Wire line logs,	list each type
		sheets if necess			Log Typ		Logged intervals
		THL, Sat high.	_		SB/CCL		7600-7740
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				CERTIFICATI	ON		
l portificie	dorthe	المصاحبين	nuo noo	CERTIFICATI		h tha informatio	on submitted in this
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							re are significant
		_		1	ot fine and imp	risonment. (Re	f. CFR 144.32).
		TLE (Please typ	e or print)	SIGNATURE	İ	\_m	DATE SIGNED
Paul McMille				1 Vn.	no M	M	03/18/98
Minefield Su	pervisor			1 can	100 100		

		UNITED	STATES ENVI	RONMENTAL	PROTECTION	AGENCY			
•			WAS	HINGTON DC	20460				
EPA			WELI	L REWORK RE	CORD				
NAME AND	ADDRESS C	F PERMITTEE		NAME AND A	DDRESS OF C	CONTRACTOR			
IMC Kalium	Ltd			IMC Kalium L	IMC Kalium Ltd.				
1395 135th A	venue	1395 135th Avenue							
Hersey, MI	49639			Hersey, Mi 4	19639				
LOCATE WE	LL AND OU	TLINE UNIT ON	STATE	COUNTY		PERMIT NUME	BER		
SECTIO	N PLAT 64	0 ACRES	МІ	Osceola		MI-133-3G-A00	02		
	N		SURFACE LO	OCATION DES	CRIPTION	<del></del>			
			1	W1/4 of SW1/		Section26 Tow	nship17N Range9W		
							ection and drilling unit		
			1			,	<b>3</b>		
lw Fif		E	  Surface Local	tion 898ft from	(N/S) N Lin	e of quarter sec	tion		
				from (E/W) W					
l x			WELL ACTIV			Sefore Rework	TYPE OF PERMIT		
			Brine Dis	sposal	7760		Individual		
				ed Recovery	Total Depth A		X Area		
<u> </u>	S			rbon Storage	7760		Number of Wells 16		
			X_ Sol'n Mir	-	Date Rework		1		
			Lease Name	· · · · · · · ·	9/15/97		Well Number		
			Kalium Herse	W	Date Rework		2032		
1			Transmir rerse	· y	9/15/97	•	2032		
	w		JELL CASING	RECORD - BE					
	asing	Cemer		Perforation			Acid or Fracture		
Size	Depth	Sacks	Туре	From	To		reatment Record		
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	וארו	CACING DEC	ODD AFTER	DEWORK (In-	l Additions	and Changes (	On Lo		
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			d-1-2			Mar Par Land	Pat and the		
		k operations in				Wire line logs, I			
		sheets if necess			Log Typ		Logged intervals		
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tubing to 776	0,			, cont		·			
				CERTIFICATION					
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							nsible for obtaining		
					-		e are significant		
				the possibility	of fine and imp	risonment. (Ref			
		TLE (Please typ	e or print)	SIGNATURE			DATE SIGNED		
Paul McMiller				1 mill	4. 2	16/1	10/22/97		
Minefield Sup	ervisor			JULIE	he to	9	15/30/11		

A								_	UNITED	STATES ENV	IRONMENTAL	PROTECTION	AGENCY	
NAME AND ADDRESS OF PERMITTEE  MC Kalium, Ltd  MMC Kalium Ltd  1395 135th Avenue  Hersey, MI 49539  LOCATE WELL AND OUTLINE UNIT ON STATE  SECTION PLAT - 840 ACRES  N  SURFACE LOCATION DESCRIPTION  WELL ACTIVITY  Brine Disposal  Total Depth Refore Rework  T7560  T7560  T75750  T7560  T760  T760  T7760										WAS	HINGTON, DC	20460		
MC Kallum, Ltd. 1395 135th Avenue Hersey, MI 49539 LOCATE WELL AND OUTLINE UNIT ON STATE OCUMITY SECTION PLAT - 640 ACRES N SURFACE LOCATION DESCRIPTION SECTION PLAT - 640 ACRES N SURFACE LOCATION DESCRIPTION SET 14		EF	PA							WEL	L REWORK RE	CORD		
1395 135th Avenue	NAI	ME	ΑN	D AL	DF	RES	S OF	PE	RMITTE	Ξ	NAME AND A	DDRESS OF (	CONTRACTOR	_
Hersey, MI 49839	IMC	C Ka	liur	n, Lt	d						IMC Kalium L	td.		
LOCATE WELL AND OUTLINE UNIT ON STATE SECTION PLAT - 640 ACRES N SUFFACE LOCATION DESCRIPTION SE1/4 of NW/14 of SW/14 of 1/4 of Section25 Township17N Range9W Locate well in two directions from nearest lines of quarter section and drilling unit  N SE1/4 of NW/14 of SW/14 of 1/4 of Section25 Township17N Range9W Locate well in two directions from nearest lines of quarter section and drilling unit  N WELL ACTIVITY Brine Disposal Enhanced Recovery Hydrocarbon Storage A_ 500 mining Hair Hersey S WELL CASING RECORD - BEFORE REWORK Casing Cement Perforations N WELL ASSING RECORD - BEFORE REWORK Casing Cement Perforations Acid or Fracture Treatment Record  N WELL CASING RECORD - AFTER REWORK (Indicate Additions and Changes Only)  Casing Cement WELL CASING RECORD - AFTER REWORK (Indicate Additions and Changes Only)  Casing Cement VELL CASING RECORD - AFTER REWORK (Indicate Additions and Changes Only)  Casing Cement VELL CASING RECORD - AFTER REWORK (Indicate Additions and Changes Only)  Casing Cement VELL CASING RECORD - AFTER REWORK (Indicate Additions and Changes Only)  Casing Cement VELL CASING RECORD - AFTER REWORK (Indicate Additions and Changes Only)  Casing Cement VELL CASING RECORD - AFTER REWORK (Indicate Additions and Changes Only)  Casing Cement VELL CASING RECORD - AFTER REWORK (Indicate Additions and Changes Only)  Casing Cement VELL CASING RECORD - AFTER REWORK (Indicate Additions and Changes Only)  Casing Cement VELL CASING RECORD - AFTER REWORK (Indicate Additions and Changes Only)  Casing Cement VELL CASING RECORD - AFTER REWORK (Indicate Additions and Changes Only)  Casing Cement VELL CASING RECORD - AFTER REWORK (Indicate Additions and Changes Only)  Casing Cement VELL CASING RECORD - AFTER REWORK (Indicate Additions and Changes Only)  Casing Cement VELL CASING RECORD - AFTER REWORK (Indicate Additions and Changes Only)  Casing Cement VELL CASING RECORD - AFTER REWORK (Indicate Additions and Changes Only)  Casing Cement VELL CASING RECORD - AFTER REWORK (Indicate Additions and Changes Only)  Casing Cem	139	5 13	35tl	ı Av	enu	e					1395 135th A	venue		
SECTION PLAT - 640 ACRES  N  SURFACE LOCATION DESCRIPTION  SEL14 of NV114 of SV114 of 114 of Section28 Township17N RangegW Locate well in two directions from nearest lines of quarter section and drilling unit  W  SURFACE LOCATION DESCRIPTION  SEL14 of NV114 of SV114 of 114 of Section28 Township17N RangegW Locate well in two directions from nearest lines of quarter section and drilling unit  WELL ACTIVITY  WELL ACTIVITY  Hydrocarbon Storage  A. SOUR withing Lease Name  Kallum Hersey  Lease Name  Kallum Hersey  WELL CASING RECORD - BEFORE REWORK  Casing  Cement  Size  Depth  Sacks  Type  From  To  Treatment Record  Tre	Her	sey	, <u>N</u>	11 49	639	9	_				Hersey, MI 4	9639		
SURFACE LOCATION DESCRIPTION SE1/4 of MY1/4 of SW1/4 of Sw1/4 of S	LO	CAT	Ę٧	VEL	A	ND (	OUTI	LINE	UNIT O	N STATE	COUNTY	_	PERMIT NUM	BER
SE1/4 of NW1/4 of SW1/4 of Section26 Township17N Range9W	ĺ	SE	СТ	ION	PL	<b>ΑΤ</b> -	- 640	AC	RES	MI	Osceola		MI-133-3G-A00	02
Locate well in two directions from nearest lines of quarter section and drilling unit					N				•	SURFACE LO	OCATION DES	CRIPTION		
Surface Location_888ft from (N/S)_N_Line of quarter section and 1319_ft. from (EW)_W_line of quarter section WELL ACTIVITY Brine Disposal Enhanced Recovery Hydrocarbon Storage A_SUR withing Lease Name Kallum Hersey Date Rework Completed \$128/97 WELL CASING RECORD - BEFORE REWORK  Casing Cement Perforations Size Depth Sacks Type From To Treatment Record  WELL CASING RECORD - A FTER REWORK (Indicate Additions and Changes Only)  WELL CASING RECORD - A FTER REWORK (Indicate Additions and Changes Only)  WELL CASING RECORD - A FTER REWORK (Indicate Additions and Changes Only)  Casing Cement Perforations Acid or Fracture Treatment Record  Well Number  Treatment Record  Treatment Record  Treatment Record  Well Casing Cement Perforations Acid or Fracture Treatment Record  Treatment Record  Treatment Record  Treatment Record  Well Casing Cement Perforations Acid or Fracture Treatment Record  Treatment Record	ļ	П			Τ		Π	Т	1	_SE1/4 of _N	W1/4 of <u>SW</u> 1/	4 of 1/4 of	Section26_Tov	vnship <u>17N</u> Range <u>9W</u>
and 1319 ft. from (EW) W line of quarter section  WELL ACTIVITY Brine Disposal Enhanced Recovery Hydrocarbon Storage  A son invining Lease Name Kallum Hersey  WELL CASING RECORD - BEFORE REWORK  Casing Cement Perforations Size Depth Sacks Type From To Treatment Record  Treatment Record  Treatment Record  WELL CASING RECORD - AFTER REWORK (Indicate Additions and Changes Only)  WELL CASING RECORD - AFTER REWORK (Indicate Additions and Changes Only)  Casing Cement Perforations Acid or Fracture Treatment Record  Tr		П	٦	T	Τ	П		Т	1	Locate well in	two directions	from nearest li	nes of quarter s	ection and drilling unit
and 1319 ft. from (EW) W line of quarter section  WELL ACTIVITY Brine Disposal Enhanced Recovery Hydrocarbon Storage  A son invining Lease Name Kallum Hersey  WELL CASING RECORD - BEFORE REWORK  Casing Cement Perforations Size Depth Sacks Type From To Treatment Record  A Sol Driven  3 3/8 925 715 A 7 7755 575 H  WELL CASING RECORD - AFTER REWORK (Indicate Additions and Changes Only)  Casing Cement Perforations Acid or Fracture Treatment Record  WELL CASING RECORD - AFTER REWORK (Indicate Additions and Changes Only)  Casing Cement Perforations Acid or Fracture Treatment Record  Trea		$\Box$	Ť	T	T				]	j				
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Brine Disposal Enhanced Recovery Number of Wells 18  Lease Name Kalium Hersey Lease Name Kalium Hersey Date Rework Completed 5/28/97  WELL CASING RECORD - BEFORE REWORK  Casing Cement Perforations Acid or Fracture Treatment Record  30 80 Driven 13 3/8 925 715 A 77 7755 575 H  WELL CASING RECORD - AFTER REWORK (Indicate Additions and Changes Only)  Casing Cement Perforations Acid or Fracture Treatment Record  310 80 Driven 310 80 Driven 311 80 Treatment Record  10 5/8 5/28/97  WELL CASING RECORD - AFTER REWORK (Indicate Additions and Changes Only)  Casing Cement Perforations Acid or Fracture Treatment Record  310 80 Driven 317 30 80 Driven 318 30 80 Driven 319 30 80 Driven 319 30 80 Driven 319 30 80 Driven 30 80 Driven 30 80 Driven 30 80 Driven 40 318 5/28/97  Treatment Record  40 40 41 41 41 41 41 41 41 41 41 41 41 41 41		П	Ì	7	Ť	П	П	Ť	1	and 1319_ft.	from (E/W)_W	line of quarter	section	
Enhanced Recovery Hydrocarbon Storage  A Son in withing Lease Name Kalium Hersey  Lease Name Kalium Hersey  Date Rework Completed 5/28/97  Well Number of Wells 16  Well Number of Wells 16  Well Number of Wells 16  Well Number of Wells 16  Size Depth Sacks Type From Date Rework Completed 5/28/97  Well Number Date Rework Completed 5/28/97  Well Number Date Rework Completed 5/28/97  Well Number Date Rework Completed 5/28/97  Well Number Date Rework Completed 5/28/97  Well Number Date Rework Completed 5/28/97  Well Number Date Rework Completed 5/28/97  Well Number Date Rework Completed 5/28/97  Well Number Date Rework Completed 5/28/97  Well Number Date Rework Completed 5/28/97  Well Number Date Rework Date Rework Completed 5/28/97  Well Number Date Rework Completed 5/28/97  Acid or Fracture Treatment Record Date Perforations Acid or Fracture Treatment Record Date Perforations Acid or Fracture Treatment Record Date Date Date Date Date Date Date Date		П	Х	7	Γ			1	1	WELL ACTIV	'ITY	Total Depth B	efore Rework	TYPE OF PERMIT
S Hydrocarbon Storage 7760 Number of Wells 16  Lease Name Kalium Hersey Date Rework Commenced 5/28/97 Well Number  WELL CASING RECORD - BEFORE REWORK  Casing Cement Perforations Acid or Fracture  Treatment Record  30 80 Driven 33/8 925 715 A 7 7755 575 H  WELL CASING RECORD - AFTER REWORK (Indicate Additions and Changes Only)  Casing Cement Perforations Acid or Fracture  Treatment Record  WELL CASING RECORD - AFTER REWORK (Indicate Additions and Changes Only)  Casing Cement Perforations Acid or Fracture  Size Depth Sacks Type From To Treatment Record  30 80 Driven 33/8 925 715 A  WELL CASING RECORD - AFTER REWORK (Indicate Additions and Changes Only)  Casing Cement Perforations Acid or Fracture  Treatment Record  Describe Perforations Acid or Fracture  Treatment Record  Treatment Record  Wire line logs, list each type  Log Types Logged intervals  Describe rework operations in detail Wire line logs, list each type  Log Types Logged intervals  CERTIFICATION  I certify under the penalty of flaw that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete I am aware that there are significant penalties for submitting false information, individualing the possibility of fine and imprisonment. (Ref. CFR. 144.32).  IAME AND OFFICIAL TITLE (Please type or print) SIGNATURE DATE SIGNED			Ì	Ť	Ì			T	1	Brine Di	sposal	7760		Individual
Lease Name Kalium Hersey Date Rework Completed 5/28/97 Date Rework Completed 5/28/97  Well Number 2032  Well Number 2032  Well Number 2032  ***Tope From To Treatment Record 30 80 Driven 33/8 925 715 A 35/8 5205 2675 A 7 7755 575 H  WELL CASING RECORD - AFTER REWORK (Indicate Additions and Changes Only)  Casing Cement Perforations Acid or Fracture Treatment Record  **Well Number **Treatment Record**  **Well Number 1	ĺ	П	7	1	<del>                                     </del>			1	1	Enhance	ed Recovery	Total Depth A	fter Rework	X_Area
Lease Name Kalium Hersey Date Rework Commenced 5/28/97 Date Rework Completed 5/28/97  Well Number 2032  Well Number 2032  **Type From To Treatment Record  30 80 Driven 33/8 925 715 A 7 7755 575 H  WELL CASING RECORD - AFTER REWORK (Indicate Additions and Changes Only)  Casing Cement Perforations Acid or Fracture Treatment Record  WELL CASING RECORD - AFTER REWORK (Indicate Additions and Changes Only)  Casing Cement Perforations Acid or Fracture Treatment Record  Treatment Record  O 80 Driven  Treatment Record  O 80 Driven  O 80 Driven  Treatment Record  O 80 Driven  O 80			'		s	٠ ا	· ·	L.		<u> </u>	•	1		Number of Wells 16
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finefield Supervisor					isc	)r					Haw	No nec	12	07/01/97

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NAME AND OFFICIAL TITLE (Please type or print)	SIGNATUBE	DATE SIGNED
Paul McMillen Minefield Supervisor	fall on miles	04/15/97

**SEPA** 

 $XX^{l}$ 

Casing

Casing

80

925

Depth

80

925

5205

7755

PFC injection point

Size

Size

13-3/8

7738 feet

9-5/8

30

NAME AND ADDRESS OF PERMITTEE

IMC Kalium

Hersey, MI

1395 135th Avenue

LOCATE WELL AND OUTLINE UNIT ON

SECTION PLAT -- 640 ACRES

N

49639

Ε

Sacks

Driven

Sacks

715

2675

Driven

**SEPA** 

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON DC 20460

### **WELL REWORK RECORD**

MAY 0 3 1997

NAME AND ADDRESS OF PERMITTEE
IMC KALIUM
1395 135th Avenue
Hersey, MI 49639

NAME AND ADDRESS OF CONTRACTOR
IMC KALIUM
1395 135th Avenue
Hersey, MI 49639

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LOCATE WELL AND OUTLINE UNIT ON

STATE COUNTY PERMIT NUMBER - A002 Osceola ΜI SURFACE LOCATION DESCRIPTION
SE 1/4 of NW1/4 of SW 1/4 of 1/4 of Section 26 Township 17N Range 9W LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT Surface 898 Location 1319 ft from (N/S) ft. from (E/W) \_\_\_\_ Line of quarter section TYPE OF PERMIT WELL ACTIVITY Total Depth Before Rework ☐ Brine Disposal 7760 ☐ Individual ☐ Enhanced Recovery XI Arsa Total Depth After Rework Number of Wells  $\frac{16}{}$ ☐ Hydrocarbon Storage 7760 X Sol'n Mining Date Rework Commenced Lease Name Well Number 2032 03/26/97 Kalium Hersey Date Rework Completed 03/31/97

WELL CASING RECORD — BEFORE REWORK										
Acid or Fracture	ations	Perior	nent	Сеп	ing	Cas				
Treatment Record	То	From	ize Depth . Sacks Type							
				Driven	80					
			Å	715	925	-378				

2.20	#0pan	. 555-4	, , ,	714111	 
30	80	Driven			
13-3/8	925	715	A		
9-5/8	5205	2675	Α		
7	7755	575	H		
		250.2 4 1 3 3 4 1 1 3 4 1 1 1 1 1 1 1 1 1 1 1			
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WELL CASING RECORD - AFTER REWORK (Indicate Additions and Changes Only) Acid or Fractura Casing Perforations Type To Treatment Record Size Depth Sacts From 80 driven 30 13-3/8 925 715 A 9=5/8 5205 2675 A 4 SH/FT 7738 7748 7755 575 Н

	1	i					
DESCRIBE REWO	RK OPERATIONS	IN DETAIL		٧	VIRE LINE LOGS	. LIST EACH TYPE	
USE ADDITIONA	AL SHEETS IF NE	CESSARY		Log Type	98	Logged Intervals	
Remove tubing.	Run OCHI	Log.					
Injection point	÷			OCHL		7738 to surface	
7738 feet							
			•		· ·		

### **CERTIFICATION**

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NAME AND OFFICIAL TITLE (Please type or print)
Paul McMillen
Minefield Supervisor

SIGNATURE
Par Vi MISS

DATE SIGNED

04/30/97

STATE OF MICHIGAN

OEPARTMENT OF NATURAL RESOURCES

GEOLOGICAL SURVEY DIVISION
P O BOX 30028 LANSING MICHIGAN 48909

### RECORD OF WELL DRILLING OR DEEPENING

USE APPROPRIATE BLOCKS, FOR ITEMS NOT LISTED SUBMIT ATTACHMENTS REQUIRED BY AUTHORITY OF

ACT 61 P.A. 1939, AS AMENDED (Submit 2 copies within 30 days of completion.)

NON-SUBMISSION AND/OR FALSIFICATION OF THIS INFORMATION MAY RESULT IN FINES AND/OR IMPRISONMENT.

NAME AND AODRESS OF OWNER Kalium Chemicals Ltd. 1395 135th Avenue Hersey, MI 49639 NAME AND ADDRESS OF DRILLING CONTRACTOR

McLachlin Drilling Company PO Box 548 49631 Evart, MI

OATE DRILLING BEGAN DATE DRILL COMPLETED 6/28/96 7/20/96

TOTAL DEPTH OF WELL FORMATION AT T.D. Driller 7810 Log 7787 A-1 Evap DATE OF FIRST INTECTION INJECTED FORMATION

T.B.A. A-l Evap

ACT 315, P.A. 1969, AS AMENDED (Submit 2 copies within 60 days of completion.)

DATE WELL COMPLETED

7/23/96

PROD FORMATION(S)

SOLUTION FORMATION

A-l Evap

A-l Evap

Kalium Hersey 2032 SURFACE LOCATION

SE 1/4 of NW 1/4 of SW TOWNSHIP

PERMIT NO /DEEPENING PERMIT NO

M-408

FIELD/FACILITY NAME

Hersey Potash

WELL NAME & NUMBER

Osceola Hersey FOOTAGES: NORTH/SOUTH

898 Ft. from North Line and 1319Ft. from West Line of 1/4 Sec

SUBSURFACE LOCATION (if directionally drifted) SW 1/4 of NW 1/4 of SW ¼ Section 26 ⊤1.7N

COUNTY TOWNSHIP Hersey Osceola

FOOTAGES NORTH/SOUTH

1080 Ft from North Line and 560Ft from West Line of 1/4 Sec FEET DRILLED -- CABLE TOOLS From N/A

K.B. 1151.3 ft. R.F.

From **ELEVATIONS** 

Grd. 1137.3 ft ft. | R.T 1149.3 ft. N/A

TYPE OF WELL (after completion)

Solution Mining

T17N R 9W

в 9W

**FAST/WEST** 

EAST/WEST

To 7810

FEET DRILLED - ROTARY TOOLS

1/4 Section 26

COUNTY

### CASING, CASING LINERS AND CEMENTING, OPERATING STRINGS

### **PERFORATIONS**

SIZE	WHERE SET	CEMENT	FT. PULLED		NUMBER		OP	EN
13 3/8	925	715 SKS		DATE	HOLES	INTERVAL PERFORATED	YES	NC
9 5/8	5205	2675 SKS				None		
7	7755	575 SKS						
	-							

#### GROSS PAY INTERVALS

### ALL OTHER OIL AND GAS SHOWS OBSERVED OR LOGGED

FORMATION	OIL OR GAS	FROM	то		OIL	4500		WHE	RE OB	SERVE		
None		Nor	e	FORMATION	OR GAS	DEPTH	Sam- ples	Odor	Pits	Mua Line	Gas Log.	F <sub>I</sub> ll Up
				None		None						
				<u> </u>				)				-
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### STIMULATION BY ACID OR FRACTURING

### WATER FILL UP (F.U.) OR LOST CIRCULATION (L.C.) (X)

DATE	INTERVAL TREATED	MATERIALS AND AMOUNT USED	FORMATION	F.U. L.	C. DEPTH	AMOUNT
	None	None	None	<u> </u>		
			'			

### MECHANICAL LOGS, LIST EACH TYPE RUN

#### DEVIATION SURVEY DEPTH CORRECTION PLUGGED BACK

BRAND	(X)	LOG TYPES	LOGGED INTERVALS	DEPTH	CORRECTION	RUN AT	DEGREES	YES	NO	DEPTH
Schlumberger	Х	Digital Sonic	5100 - 7785			2700	1.0		Х	
RINDER Schl	Х	GR-CAL	5100 - 7785			3654	16.5			
9 MW	Х	Cement Bond	4886 - 7740		None	5121	14.3			
Scientific	X	Gyro	0 - 7800			7306	2.8			_

#### PRODUCTION TEST DATA

							_
OIL — Bbis/day	GRAVITY - °API	COND Bbls/day	GAS — MCF/day	WATER — Bbls/day	H <sub>2</sub> S - Grains/100 cu it	BHP. AND DEPTH	
N/A	N/A	N/A	N/A	N/A	N/A	N/A	

- 1	AM RESPONSIBLE	FOR THI	S REPORT	THE	INFORMATION	15	COMPLETE	ΔND	CORRECT

DATE NAME AND TITLE (PRINT) 9/4/96

Colin Howard, Production Geologist

SIGNATURE

### FORMATION RECORD

ELEVATION USED

GEOLOGIST NAME

(ATTACH ADDITIONAL SHEETS IF NECESSARY)

TOPS TAKEN FROM

1151.3 Colin Howard X DRILLERS LOG SAMPLE LOG ELECTRIC LOG FORMATION (TYPE, COLOR, HARDNESS) FORMATION (TYPE.COLOR: HARDNESS) FROM 70 FROM ТО NOTE: IF WELL DIRECTIONALLY DRILLED, ADD TRUE VERTICAL DEPTH FORMATION TOPS WHERE APPROPRIATE Drift 804 0 804 1388 Michigan Group 1388 1465 Triple Gyp Brown Lime 1465 1577 1577 1694 Stray Sand 1860 Marshall Sand 1694 2610 Coldwater Shale 1860 2685 Sunbury Shale 2610 2685 3100 Ellsworth Shale Antrim Shale 3100 3264 Traverse Formation 3264 3305 3305 3809 Traverse Lime Bell Shale 3809 3879 3879 3939 Dundee 3965 Reed City Anhydrite 3939 3965 4120 Reed City Dolomite IF WELL WAS CORED, ATTACH CORE DESCRIPTION 4120 4193 Detroit Rive Anhydrite Detroit River Salt 4193 4609 DRILL STEM TEST DATA 4718 Detroit River Sour 4609 4718 5019 Massive Anhydrite 5134 5019 Black Lime 5224 Sylvania 51.34 None 5378 Bois Blanc 5224 Bass Island 5378 5701 Salina 5701 5708 5708 5733 F-Unit 6298 F-Salt 5/33 6298 6422 E-Unit 6422 6462 D-Salt C-Shale 6462 6582 6582 6924 B-Salt A-2 Carbonate 7061 6924 7061 7409 A-2 Evaporite 7478 A-1 Carbonate 7409 7478 7810 A-l Evaporite (T.D.) LIST ATTACHMENTS: Scientific - Gyro Survey Schl - GR - Caliper Schl - Digital Sonic M.W. - Cement Bond GEOLOGICAL SURVEY USE ONLY REVIEWED BY DATE OF REVIEW

STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES GEOLOGICAL SURVEY DIVISION BOX 30028 LANSING MICHIGAN 48909

### PERMIT TO

*	DRILL	DEEPEN	☐ REWORK	OPERATE

GRANTED UNDER PROVISIONS OF

Act 61 P.A. 1939, as amended Act 315, P.A. 1969 as amended (MCL 319.1 to 31927) (M.C.L. 319 211 to 319 236)

Violation of and/or non-compliance with the provisions of the acts and conditions of permit may result in penalties. This permit includes as requirements all the operations and methods proposed by the applicant, unless rejected or altered by the DNR, and along with the attached stipulations are incorporated in its entirety by reference. WELL NO

W-400	3/01/90	Mathral Brins
CANCEL AND TRA	NSFER ISSUED	FORMATION
		A-1 Evaporite
DEEPENING PER	MIT	DEPTH
		7880'MD - 7800'TVD
PERMIT EXPIRES		KIND OF TOOLS
	9/07/96	ROTARY
ISSUED TO		•

ISSUED

TYPE OF WELL

PERMIT

KALTUM CHEMICALS, LID. 1395 135th AVENUE HERSEY, MI 49639

WELL NAME

KALIUM HERSEY 華2032

LOCATION AND FOOTAGES:

SHL: SEt, NWt, SWt, Section 26, T17N, RO9W, Hersey Township, Osceola County.

898 feet from North and 1319 feet from West Line of quarter section.

BHL: SWY, NWY, SWY, Section 26, T17N, RO9W, Hersey Township, Osceola County.

1050 feet from the North and 580 feet from the West Line of Quarter Section.

			SING AND SEALING REQUIREM	IENTS		
O.D. SIZE	WT./FT.	CASING GRADE	CONDITION	DEPTH	SACKS	W.O.C. (HAS.)
11 3/4"	46#	ű-ű:	New/Used	6251	625	16
9 5/8"	40\$	<b>K-55</b>	New/Osed	52001	1800	16
7"	23#	1-50	New	78801	300	24

- No earthen reserve pit is to be dug. Steel tanks are totbe used to contain drilling fluids and cuttings.
- Cuttings shall be disposed of in a DEQ Class II landfill.

OFFICE TO BE NOTIFIED BEFORE DRILLING/DEEPENING STARTS

Cadillac District Office (616) 775-9727

PAGE(S)

Rex Tefertiller

PERMIT COORDINATOR

(517) 334-**5**974

FOR THE SUPERVISOR OF WELLS/MINERAL WELLS

PAGE 1 of

### THIS PERMIT IS SUBJECT TO THESE GENERAL CONDITIONS

- 1 Drilling operations shall not start until the drill site preparation requirements are completed.
- Initiation of any work on the permitted project confirms the permittee's acceptance and agreement to comply with all the terms and conditions of this permit and the rules, orders and requirements of the Supervisor of Wells/Mineral Wells.
- 3. The permittee is required to give notice to public utilities in accordance with Act 53, PA 1974 (M.C.L. 460.701 to 460.718)
- Any changes from what is stated in the permit application and permit shall be approved by the Supervisor of Wells/Mineral Wells
- 5 This permit is valid only for the permittee of issue and any change of ownership shall be accompanied by a request to the Supervisor of Wells/Mineral Wells to transfer the permit from the current owner to the new owner.
- 8 NOTICE AND REQUIREMENTS FOR SOURCES OF WATER AND WATER WELLS USED IN CONJUNCTION WITH OIL AND GAS OR MINERAL WELL DRILLING AND OPERATIONS"

  December 1, 1984 is made part of and a condition of this permit.
- 7 During well completion and testing procedures all fluids shall be contained in tanks and transported to off site disposal facilities.
- B The Michigan Air Pollution Control Commission rules require that a person shall not install nor after sour gas or oil well production equipment and tlare unless a permit to install has been approved by the Commission. An operator is allowed to drill and test a sour well prior to obtaining the necessary permit to install from the Commission, but is not allowed full production of such wells before issuance of the necessary air use permits.
- 9 This permit does not convey properly rights in either real estate or material or does it authorize any injury to private property or invasion of private or public rights or does it weive the necessity of seeking federal and local permits or complying with other state statutes.
- 10 If a Hydrogen Sulphide contingency plan is required a copy of PART if of the plan shall be posted in the primary briefing area.
- 11 All trash and garbage shall be removed from the drill site at the completion of drilling.
- 12 Blowout preventers accumulators, and pumps shall be certified as operable under the product manufacturer's minimum operational specifications. This certification shall include proper operation of the closing unit valving pressure gauges, and manufacturer's recommended accumulatory fluids. Certification may be obtained through those companies presently used to test the blowout preventers stack and casing Certification shall be required annually and shall be posted on the rigificor.
- 13 In addition to the primary closing system, including an accumulator system, the blowout preventers shall have a secondary system. A combination of any two of the following secondary closing systems will be acceptable: Electric-operated pump; Air-operated pump; Hand-operated pump or nitrogen. Extensions with hand wheels are not mandatory.
- 14 Blowout preventer rams shall be of proper size for the drill pipe being used or production casing being run in the well. Variable type rams of the proper size range will be acceptable
- 15 The gas buster and flare system shall be in place and operable prior to drilling into a reservoir known or believed to contain Hydrogen Sulphide in excess of 500 ppm with the intention to complete in and/or test that reservoir
- 16. A trip tank, or any accurate fluid monitoring system, as well as a gas buster and flare system where justified, shall be in place when penstrating the A2 Carbonate formation. Changes may be granted by the Department of Natural Resources District Geologist.

APPLICA	TION FOR	PERMIT	TO: 🛛 D	RILL 🗌 D	EEPEN	☐ RE	WORK C	R 🗌 OF	PERATE	A W	/ELL
. 1)/	*****		Į			ВУ	AUTHORITY	OF:			
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	no fee required (Cperion E			I .	Fee enclos		o prior perm		□ Aban	dened (Ta	rminatad
5 List each permit		10.0	ed Employer Ident				No T Yes	TE WELL A			
	number V		38-3545577					SECTION PI	LAT - 64		
7 Surety Bond:	8 🗀 Attac	hed 9	Bond No		0 Bond A	mount:	Ī		N	- <del>1</del>	<del></del>
	Single Well X On I		Bank of Mon	treal	\$25,0	000	-				
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Kalium Ch	emicals, Ltd.								į		
12 Address: (opera	tor only if more than	one "owner")		Phone:			7 [			i	
1205 1251	A						W		<b>-</b>		E
	Avenue, Her		49639	616-832 Well number			-	J	2		
Kalium He	·	possible		2032	•		x,	,¥-SHι	- [		
14 Surface owner:	.,, sc y			2032				ВНІ			
	emicals, Ltd.										
15 Address:	A			Phone:					_ <b>!</b>		
1395 135th	Avenue, Her	sey, Mi	49639	616-832	-3755		lce	unty	<u> </u>		
	14 of SW 14 of	Sec. 25	T. 17N R.9W				1	Osceol	a		
17 Bottom hole loc	ation if directional dril	(See instruct	ions)	Township	<b>y</b>		Co	unty	u		
	14 of SW 14 of							Osceola	<u> </u>		
18 LOCATE WELL	IN TWO DIRECTIONS	FROM <u>NEAR</u>	EST LINES OF QUA	ARTER SECTION	N AND DE	RILLING UNIT	f. (See instri	uctions)			
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Bot Hole	E 0	<b>3</b> 1 4 fs			F.0	0		14/ 4			
b Location: ! U	50 tt from (N	/s)_Nortn	Line of quart	er section Al	D 58	U	.ft from (E/V	n <u>west</u>	Line o	f cuarte	section
c. Unit: N/A	ft. from (N	/S)	Line of d	rilling unit. Al	ND		tt. from (E/M	Λ	Lir	e of dri	illing voit
19 Orilling contracto		20 Kind	of tools (Rotary of								
McLachlin	Drilling	Ro	otary			No 🔉	Yes		No 5	Yes	
	(Detail equipment type	size trim r	ating testing choke	manifold, etc	See instru	ections)					
See attach	ned										
24 intended Total [		on at Total D	epth 26. Producing	Formation		·	27. Objective	Pool or Fie	eid		
8		Evapori	-			Ì		ey Pota			
28	7880'MD	PROPOSED I	DRILLING, CASING	G, CEMENTIN	G AND	SEALING P	ROGRAM				
	HOLE			CASING			CEN	MENT	Ā	MUO	
Depth	Geol. Form Bit I	Dia. O.D.	Size Wt./Ft	- Grade — Cond	lition	Depth	Sacks	W.O.C.(hrs.)	Wt.	Vis.	W.L.
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	Amhurstburg 12 1	<del></del>		, New/Used		5,200	1,800	16	10.2	27	
<b>3,8</b> 00	A-1 Evapor. 8 1	/2"   	7"   23#. L-80	). New		7.280	300	24	10.2	34	2.6.
•	dence and permit to:	Address	201.								
Kallum Ch	emicals, Ltd. FOR DNR U	1395 1 SE ONLY	35th Avenue	30 Appli	, MI cation Pre	49639 pared By: (F	rint)		Pho	ne:	
Permit	Date Is		Number			Howard					3755
_Act 61				31. Signa					- Dat		
_Act 315	3-7-9	54	M 408		4×4	Euse	d	te	<u>3 6</u> ,	199	<u>6</u> _
FOR CASH	ER'S USE ONLY DO	NOT WRITE	IN THIS SPACE							R 7200-1 ev 10/85	
										,	

PLICATION FOR PERMIT	ǶO: 🛛 DRILL	DEEPEN	☐ REWOR	K OR 🗌 OP	'ERATE A	WELL
MAIL TO	BY AUTHORITY OF:					
MICHIGAN DEPARTMENT OF NATURAL REGEOLOGICAL SURVEY DIVISION BOX 30028 CANSING MICHIGAN 489  NON-SUBMISSION AND/OR FALSIFICATION OF THE MAY RESULT IN FINES AND/OR IMPRISO 96076	IS INFORMATION	Act 61, PA 193 Oil & Gas Brine Disposal Hydrocarbon Stor Seconday Recove	rage	1b X Act 315.  Disposal X Brine Test Well X Single	∏ St □ ∥ Type	amended orage anket
Application to: (no fee required if permit is valid)		3 Fee enclosed	: 4 Do prior	r permits exist?	-	
Deepen Revise Application Cancel and Tra		□ No 🛣	Yes 🗓 No 🖔	Yes Drilled	Abandone	d/Terminate
	ed Employer ident No or	Soc Security No		LOCATE WELL A		
	38-3545577 Bond No.	10 Bond Amo	L	ON SECTION PL	LAT - 640 AC N	RES
	Bank of Montreal					
11 Applicant: (name each "owner" as they are bonded)		\$2J,00	<u>U</u>			
.,						
Kalium Chemicals, Ltd.						
12 Address: (operator only if more than one "owner")	Pho	ne:				
			w		<u> </u>	
1395 135th Avenue, Hersey, MI		6-832-3755				
13 Lease or well name: (be as brief as possible)		I number:		X. X-SHL	-	
Kalium Hersey  14 Surface owner:		32		<u> </u>		
Kalium Chemicals, Ltd.				BHL		
15 Address:		ne:				
1395 135th Avenue, Hersey, MI		6-832-3755			S	
16 Surface location (See instructions)		vnship		County		
SE 14 NW 14 of SW 14 of Sec. 26	T. 17N R.9W P	iersey		Osceola	a	
17 Bottom hole location if directional drill (See instruction	ons) Tow	nship		County		
SW 1/4 NW 1/4 of SW 1/4 of Sec. 26		lersey		Osceola		
18 LOCATE WELL IN TWO DIRECTIONS FROM NEARL Surface	ST LINES OF QUANTER	SECTION AND DRIE	LING UNI: (See	instructions		
Drilling Unit: N/A tt. from (N/S) North	Line of quarter secti			m (E/W) <u>West</u> m (E/W)		
( , , , ,	of tools (Rotary cable co					
	tary		-			
23 Blowout control (Detail equipment type size trim ra	<del></del>	old etc See instructi				
C						
See attached			7-7-01-	- Fi		
	epth 26 Producing Formati	_		jective Pool or Fie		
8,100 feet   A-1 Evaporit	<u>e   A-1 Evapoi</u> RILLING, CASING, CEN			lersey Pota	<u>sn</u>	
HOLE	CASING, CASING, CEN		ALING THOU.	CEMENT	ML	
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	23#, L-80, New			00 24	10.2 34	
0,100 HT 1 240011 0 1,2	2211 2 35				±V.4	<u> </u>
29 Send correspondence and permit to: Address						
Kalium Chemicals, Ltd. 1395 13 FOR DNR USE ONLY		e <u>rsey, MI 4</u> 30 Application Prepar	9639		Phone:	
Permit Date Issued	Number	Colin - Frepar				2 2751
Act 61 3-7-96		31 Signature:	lowaru		<u>616-83</u> Date:	<u> </u>
Act 315		4	, and	Fei	3 8,19	796
FOR CASHIER'S USE ONLY DO NOT WRITE I	N THIS SPACE		ccer-y		00 700	
			14DMR745	)9R-1 03/07/	/9点 Rev 10	1/85 - <i>S</i> O (
			71351	998-1 03/07/ 95003 5098	6 \$ <del>100.U</del>	3 201

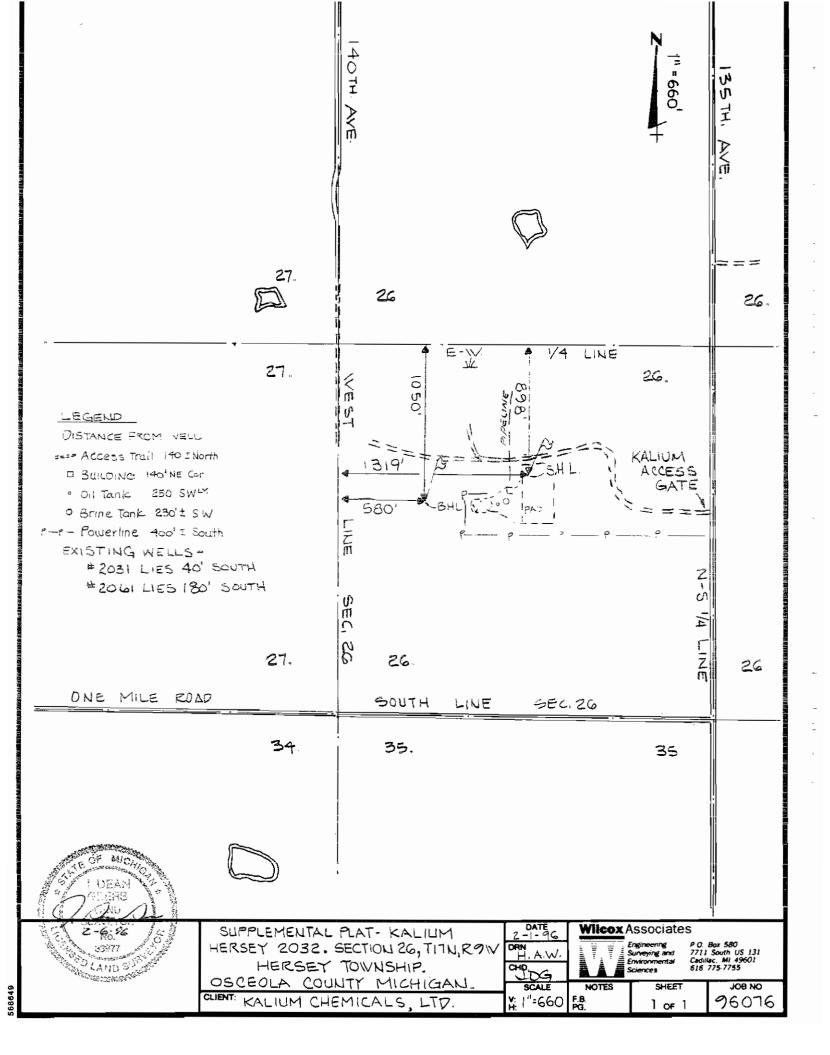
### STATE OF MICHIGAN

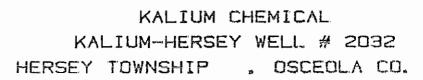
### SURVEY RECORD OF WELL LOCATION

Act 61, P.A. 1939, as amended. XX Act 315, P.A. 1969, as amended.

Filing of Survey Record, Plat or Plot Plan and Environmental Impact Assessment with Application for Permit to Drill are REQUIRED by the above listed Acts, in order to obtain a Permit.

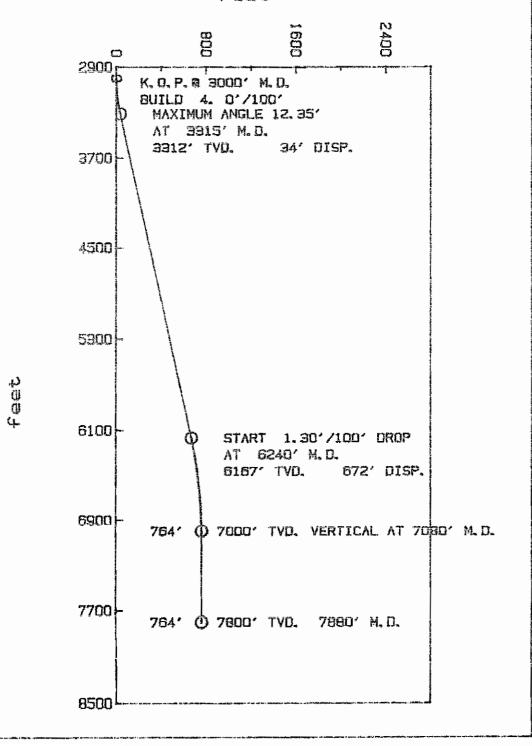
96076					
APPLICANT	WELL NAME AND NUMBER				
Kalium Chemicals, Ltd.	Kalium Hersey 2032				
SUMPAGE COCATION	TOWNSHIP COUNTY				
SE 4 of NW 4 of SW 4 of Section 26 T 17N R9W	Hersey Osceola				
BOTTOM HOLE LOCATION	COUNTY				
SW % of NW % of SW % of Section 26 T 17N R 9W	Hersey Osceola				
Instructions: Outline drilling unit and spot well location on Plat show	n below (1). Where drilling unit crosses section lines, divide the Plat				
into an East half and a West half OR a North half and a South half (whichever applies). Outline the Unit and locate the well in two directions from NEAREST quarter section and unit lines (Fo. Act 61, P.A., 1939 as amended).					
2. Location of well in two directions from NEAREST quarter section					
and unit lines is (For Act 61, P.A., 1939, as amended):  Surface Location:	(1 MILE SQUARE) N				
898 ft. from North line of Quarter Section					
1319 ft. from West line of Quarter Section					
Bottom Hole Location:					
1050 ft. from North line of Quarter Section					
580 ft from West line of Quarter Section					
Bottom Hole Will Be:	SECTION 26				
N/A ft from line of unit/property (Act 315) lease					
ft from line of unit/property (Act 315) lease	1319' 1327' Surface Hole				
Describe wellsite marker. Show or describe access route if it is not readily accessible	580' 2063' Location				
Wellsite is marked with a painted wood stake					
Site can be reached from the intersection of	Bottom				
1 <u>35th Ave. and 1 Mile Rd., then North on</u> 1 <u>35th Ave., .253 miles to Kalium Access</u>	Hole Location				
Gate, then see Supplemental Plat.	Location				
3b Zoning Residential Other: None in effect					
3c Effective date:	(Scale of Plat — 1 inch equals 1320 ft.)				
4 ON SEPARATE PLAT OR PLOT PLAN. LOCATE, IDENTIFY AND S					
A All roads power lines residences, farm buildings, and other structures within 300 feet of the stake.					
B. All lakes, streams, swamps, drainage-ways or any other surface water features within 1320 feet of the stake.					
5 In an ENVIRONMENTAL IMPACT ASSESSMENT describe all structures and surface features shown detailing plans for hazards prevention and environmental impact assessment).  3 DEAN					
NAME OF INDIVIDUAL WHO SURVEYED SITE  J. Dean Geers PS#339	DATE TITLE				
J. Dean Geers PS#339777 2-5-96 Professional Surveyor  WILCOX ASSOCIATES, INC. 7711 S US-131, Cadillac, MI 49601					
I CERTIFY THE ABOVE INFORMATION IS COMPLETE AND ACCURATE TO THE BEST OF MY KNOWLEDGE AND BELIEF.					
SIGNATURE (Approximation and approximation) ADDRESS (If different than Lessee) DATE (Mopth. Day, Year)					
Moneyard	28/4				





VERTICAL SECTION 1 IN. = 800 FT.

feet



103/

### KALIUM CHEMICAL

KALIUM-HERSEY WELL # 2032 HERSEY TOWNSHIP , OSCEOLA CO.

> PLAN VIEW 1 IN. = 200 FT.

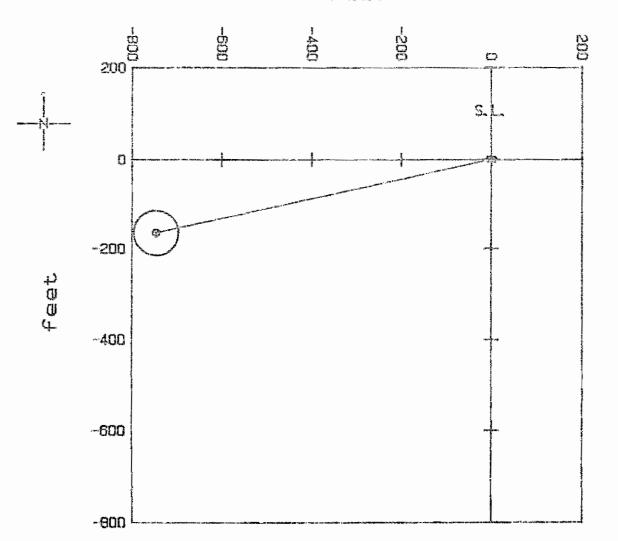
OBJECTIVE NO.1:
764' S77.32'W OF
SURFACE LOCATION
7080' M.D. 7000' TVD.
165' SOUTH 746' WEST

OBJECTIVE NO.2:
764' S77.32'W OF
SURFACE LOCATION
7880' M.D. 7800' TVD.

SUPHITTED BY:

Directional Drilling Contractors. Inc.

50' RADIUS TARGET feet





### Kalium Chemicals 1395 135th Avenue

Hersey, Michigan 49639 Telephone: (616) 832-3755 Fax: (616) 832-3349

February 6, 1996

Mr. William R. Lee Permit Coordinator Permits and Bonding Unit Geological Survey Division Department of Natural Resources P. O. Box 30256 Lansing, MI 48909

Dear Sir:

### RE: Casing and Cementing Procedures for Kalium Hersey 2032

- 1. Conductor pipe of 30 inch diameter will be driven to refusal in this well. Surface hole will be drilled with a 17-1/2" bit 100 feet into the competent rocks of the Michigan Group at a depth of approximately 850 feet. New or fully inspected used, 13-3/8 inch, 48 #/foot, J55 casing will be run to bottom with a Texas pattern shoe. The bottom three joints of casing will be strapped across the collars in three sections. The casing will be cemented with returns to surface. Wait on cement time will be 16 hours.
- 2. The 12-1/4 inch intermediate hole will be drilled directionally to the Amherstberg Formation (Black lime) at a depth of approximately 5250 feet (5100 feet T.V.D.) as local drilling shows no lost circulation zones deeper. Intermediate casing, new or fully inspected used, 9-5/8 inch, 40 #/foot, J-55 or K-55 casing, will be set at this depth and two stage cemented to surface as per cementers recommendations in line with accepted cementing practices.
- 3. The 8-1/2 inch production hole will be drilled into the A-1 Evaporite at a depth of approximately 8000 feet (7800 feet T.V.D.). The primary objective of this well is the evaluation and production of the potash mineralization of the A-1 Evaporite. The evaluation program will consist of coring the mineralized section of the A-1 Evaporite and appropriate geophysical logs. Production casing will be new 7 inch, 23 #/foot, L-80 seamless casing set in the A-1 Evaporite and cemented back to 5500 feet with premium cement.

cdh19

4. After the well operations have ceased, it will be plugged and abandoned according to Department of Natural Resources requirements.

Yours truly,

Colin D. Howard

Production Geologist

cc: Robert E. Thompson

William E. Booker, Acting Cadillac District Geologist

cdh19 2

## STATE OF MICHIGAN MINERAL WELL OPERATORS ENVIRONMENTAL IMPACT ASSESSMENT

### Well Identification

Name and Address of Applicant: Kalium Chemicals, Ltd.

1395 135th Avenue Hersey, MI 49639

Well Name and Number: Kalium Hersey 2032

Surface Location: SE 1/4 of NW 1/4 of SW 1/4

Bottom Location: SW 1/4 of NW 1/4 of SW 1/4

Section 26, T17N, R9W

Hersey Twp, Osceola Co., MI

### I. Description of Project

A development well is to be directionally drilled from a surface location 898 feet from the North line and 1,319 feet from the West line of the Southwest 1/4 of Section 26, T17N, R9W, to a bottom hole location 1050 feet from the North line and 580 feet from the West line of the same Southwest 1/4 of Section 26, T17N, R9W. The well will be drilled to a total anticipated vertical depth of 8,100 feet for the evaluation and production of sodium and potassium mineralization through the Niagaran Formation, with total depth in the A-1 Evaporite Formation. The well is located in the Southwest 1/4 of Section 26, T17N, R9W, Hersey Township, Osceola County, Michigan. Surface and mineral rights for the entire Southwest 1/4 of Section 26 are in private ownership and all concerned parties have been informed of the proposed well location and advised of our intentions to complete an application for a permit to drill this mineral well.

The proposed well is part of a project involving several other wells. All wells will be drilled from a common drilling pad area. This well will be located on an existing pad, 40 feet north of existing well #2031, and no earthwork will be required for pad preparation. The land surrounding the wellsite is rolling, open, dormant field. Land use in the surrounding area is mixed agricultural and forest recreational. There are no lakes, swamps or principal streams within 1/4 mile of the wellsite. Natural drainage at the site was to the Northwest toward Polick Creek, which is part of the Muskegon River watershed. However, all drainage from the drill pad now drains to a lined containment pond and is not allowed to enter the natural drainage system.

There is an existing brine tank located approximately 230 feet Southwest, an oil tank located approximately 250 feet West, a building located approximately 140 feet Southwest, and a powerline located approximately 400 feet South, and 440 feet West of the proposed wellsite.

### ENVIRONMENTAL IMPACT ASSESSMENT - MINERAL KALIUM - KALIUM HERSEY 2032

Access to the location will be from the North, off of an existing Kalium Chemicals, Ltd. road This road originates at 135th Avenue, an all-season bituminous surfaced County road running along the North-South 1/4 line of Section 26 There will be no new access trail needed for this project Emergency access is also available from the West off of 140th Avenue, a gravel surfaced County road located along the West line of Section 26

### II. Environmental Impact Assessment

The drilling of the well at this location should have only a minor effect on the ecological system of the vicinity Wildlife is abundant throughout the region, but no special or endangered species are known to exist in the vicinity of the proposed project. The proposed project should have only a slight effect on future population patterns.

The proposed project is for further development and production for solution mining operation purposes. A 7 inch casing will be set to the A-1 Evaporite and cemented back to 5,500 feet, below the intermediate casing in this solution mining well.

A minimal disruption to the environment will result by locating this well in the area of previous drilling. A total area of approximately 4 acres has previously been prepared for drilling and containment purposes. There will be no tree removal or earthwork needed as this well will be located on an existing pad. Appropriate drill site drainage and sedimentation control measures have been incorporated in the operational plan. We have not experienced any unusual erosional problems at this location.

Due to environmental considerations, Kalium Chemicals, Ltd. does not plan to use conventional reserve pits. The well will be drilled using a pit liner sealed around the rig base, cellar, rathole, and mousehole for containment of fluids. The following special measures will be taken in the handling of drilling solids and fluids. The drilling fluids will be circulated through closed-looped working pits. The solids control in the drilling fluid will be handled through a special flocculent and centrifuge system to provide effective separation of the brine from the drill cuttings. Brine will be disposed of in an approved disposal well. The semi-dry drill cuttings will be temporarily stored on an impervious barrier at the drilling location. The barrier will be sloped such that any leachate will collect at a central location to allow easy recovery and subsequent disposal in a disposal well. The volume of the containment area, including its side-dikes, will be able to hold several days worth of precipitation, in addition to holding the drilling cuttings expected from the wells. Final disposition of the cuttings will be at an approved landfill site

Access to the wellsite will be from the North off of an existing access trail originating off of 135th Avenue Emergency access is also available from the West off 140th Avenue No new access trail will need to be constructed.

### ENVIRONMENTAL IMPACT ASSESSMENT - MINERAL KALIUM - KALIUM HERSEY 2032

Although other wells at this location have not encountered significant concentrations of hydrogen sulfide gas, intentions are to proceed as if that possibility does exist. Appropriate safety measures will be taken. In general, the Administrative Rules for the Management of Hydrogen Sulfide, effective September 2, 1987, prepared by the Geological Survey Division, will be observed. The site is well isolated from human habitation. There are no residences within 1/4 mile of the wellsite.

An existing water supply well that had been used for previous drilling on this pad has now been abandoned. Therefore, water needed for the drilling of this well will be trucked onto the site

Upon completion of drilling and producing operations the well will be plugged in accordance with Michigan Department of Environmental Quality instructions prior to abandonment. When no longer needed, the drilling pad area will be fine graded, stabilized, and restored, as nearly as possible, to its original condition. This project is expected to have only a slight effect on the immediate environment.

### III. Possible Alternatives to the Proposed Well Location

The proposed location has been selected on the basis of a geologic interpretation and an extensive on-site evaluation. By drilling this well from a common drilling pad with others, a minimal disruption of the environment will result. Preparation of the drilling pad will not require additional tree removal. No new access trail will be required. The proposed project area is well isolated from surface waters and from human habitation. We believe the site is generally well suited for the undertaking of this project and that adequate protection of the environment can be maintained at this location. For these reasons, we believe that drilling the well from the surface location proposed is the best available alternative

### IV. Any Irreversible and Irretrievable Commitment of Resources

The proposed project should not require a significant commitment of natural resources. The productivity of the land utilized for the drilling pad and access road will be lost during the life of the project, but the surface resources of the drill site will not be irreversibly committed. Drilling of the well will not curtail the use of the surrounding environment.

### V. Summary

In order to minimize surface disturbances, this development well is to be drilled from a common surface location which has been used for other wells in this 1/4 section. The total surface area necessary for this project encompasses approximately 4 acres. The drilling pad is located on

### ENVIRONMENTAL IMPACT ASSESSMENT - MINERAL KALIUM - KALIUM HERSEY 2032

rolling, generally open land. The drill site and the surrounding 4 acres are a part of the commercial potash solution mining facility operated by Kalium Chemicals Land use in the surrounding area is mixed agricultural and forest recreational. Natural drainage from the location is Northwesterly toward a tributary of the Muskegon River. There are no lakes, swamps or principal streams within 1/4 mile of the proposed wellsite. Appropriate drill site drainage and sedimentation control measures have been included in the operational plan. Although it is not anticipated that sour gas will be encountered at this location, the intention is to proceed as if the possibility exists. Access to the wellsite will be from the North off of an existing access trail originating at 135th Avenue. Emergency access is also available from the West off of 140th Avenue. We consider the environmental impact of this project to be minimal, and will make every effort to insure protection and preservation of the environment during the course of our drilling and producing operations

Provision has been made to run ground elevation, to sea level datum, for the proposed location.

This will be performed by a Professional Surveyor within 14 days after the well has been spudded and filed with the Supervisor of Wells

Applicant's Representative

Comments by Department of Natural Resources Representative:

Authorized Representative

### WELLHEAD BLOWOUT CONTROL SYSTEM

Optional worksheet supplement for Application For Permit to Drill Deepen Rework or Operate a Well." By Authority of Act 61 P.A. 1939 as amended or Act 315 PA 1969 as amended

### STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES GEOLOGICAL SURVEY DIVISION

Box 30028 Lansing, Michigan 48909

96076

COMPANY WELL NAME AND NUMBER Kalium Hersey 2032 Kalium Chemicals, Ltd. LOCATION SHL - SE 1/4 of NW 1/4 of SW 1/4 of Section 26, T17N, R9W, Hersey Twp., Osceola Co., MI BHL - SW 1/4 of NW 1/4 of SW 1/9 of Section 26, T17N, R9W, Hersey Twp., Osceola Co., MI Annular B.O.P. 133/8 "x 5,000 w P-B.O.P. ☐ Manual Sour trim
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# SOUR GAS CONTINGENCY PLAN - PART II KALIUM HERSEY 2032 SECTION 26, 117N, R9W, HERSEY TOWNSHIP, OSCEOLA COUNTY, MICHIGAN

### RESIDENTS WITHIN 1/4 MILE OF WELLSITE

None

### **EMERGENCY TELEPHONE NUMBERS**

Name		Location	Number		
Comp	any Personnel Colin Howard	Hersey, MI	(Office)	616-832-3755	
	Kyle Barbot	Hersey, MI	(Office)	616-832-3755	
	Don Purvis	Hersey, MI	(Office)	616-832-3755	
MDNR Hal Fitch Ca		Cadillac, MI	Cadillac, MI		
Raymo	ond Vugrinovich	Lansing	(Office) (Home)	517-334-6951 517-339-9547	
Sherif	f	Osceola County		911 or 616-832-2288	
State 3	Police	Reed City, MI		911 or 616-832-2221	
Ambu	lance	Osceola County		911	
Hospi	tal	Reed City Hospital (N Patterson Road) 7665 S 220th Avenue Reed City, MI 49677		616-832-3271	
Fire Department		Hersey, MI	911 or 616-832-3255		

### SOUR GAS CONTINGENCY PLAN - PART II KALIUM - KALIUM HERSEY 2032

PAGE 2

Director of Emergency Services

Dallas Jenks Osceola Co (Office) 616-832-6172

(Emergency) 911

Pollution Emergency Alerting System (PEAS) 800-292-4706

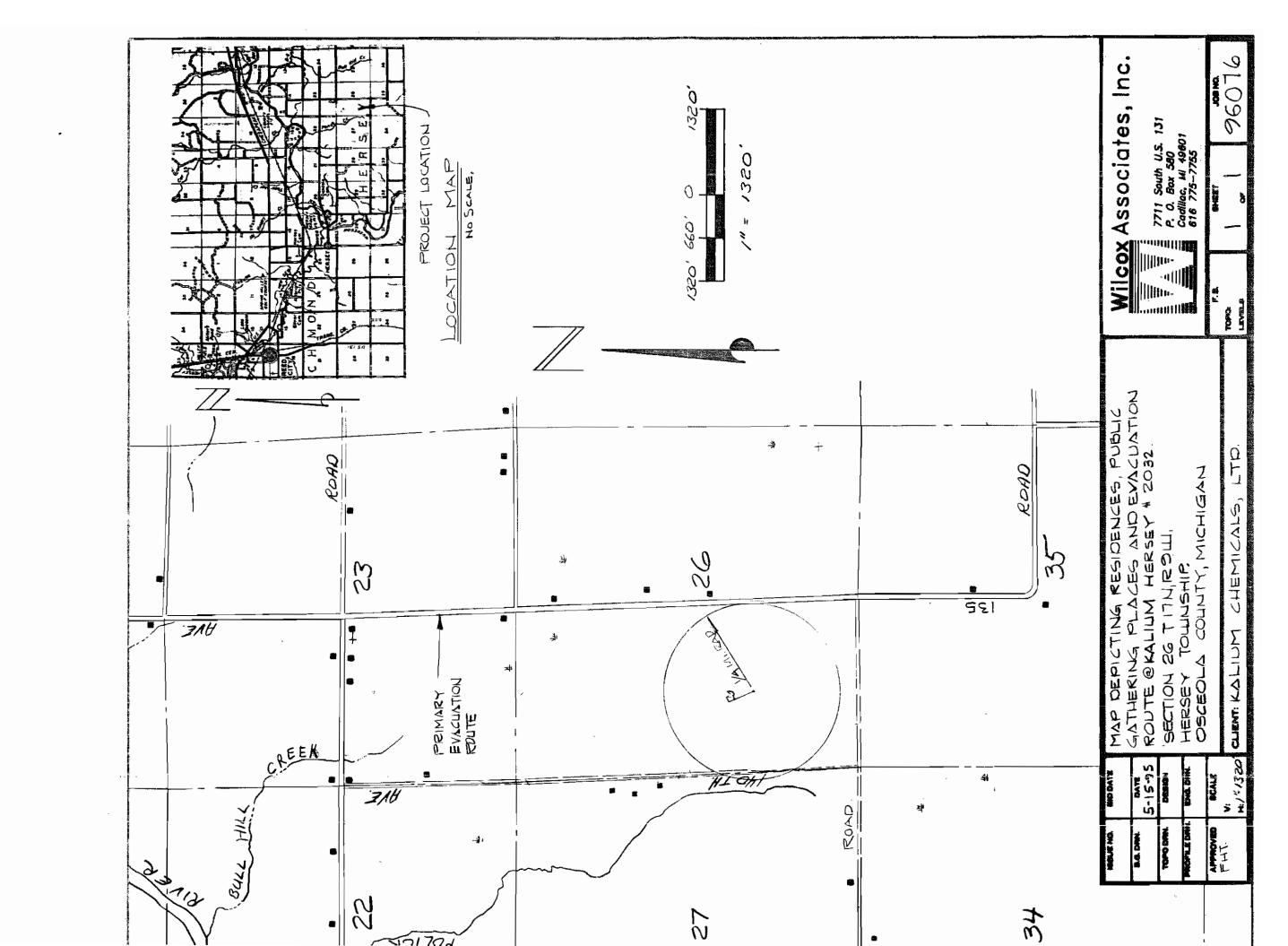
### NEAREST PUBLIC TELEPHONE

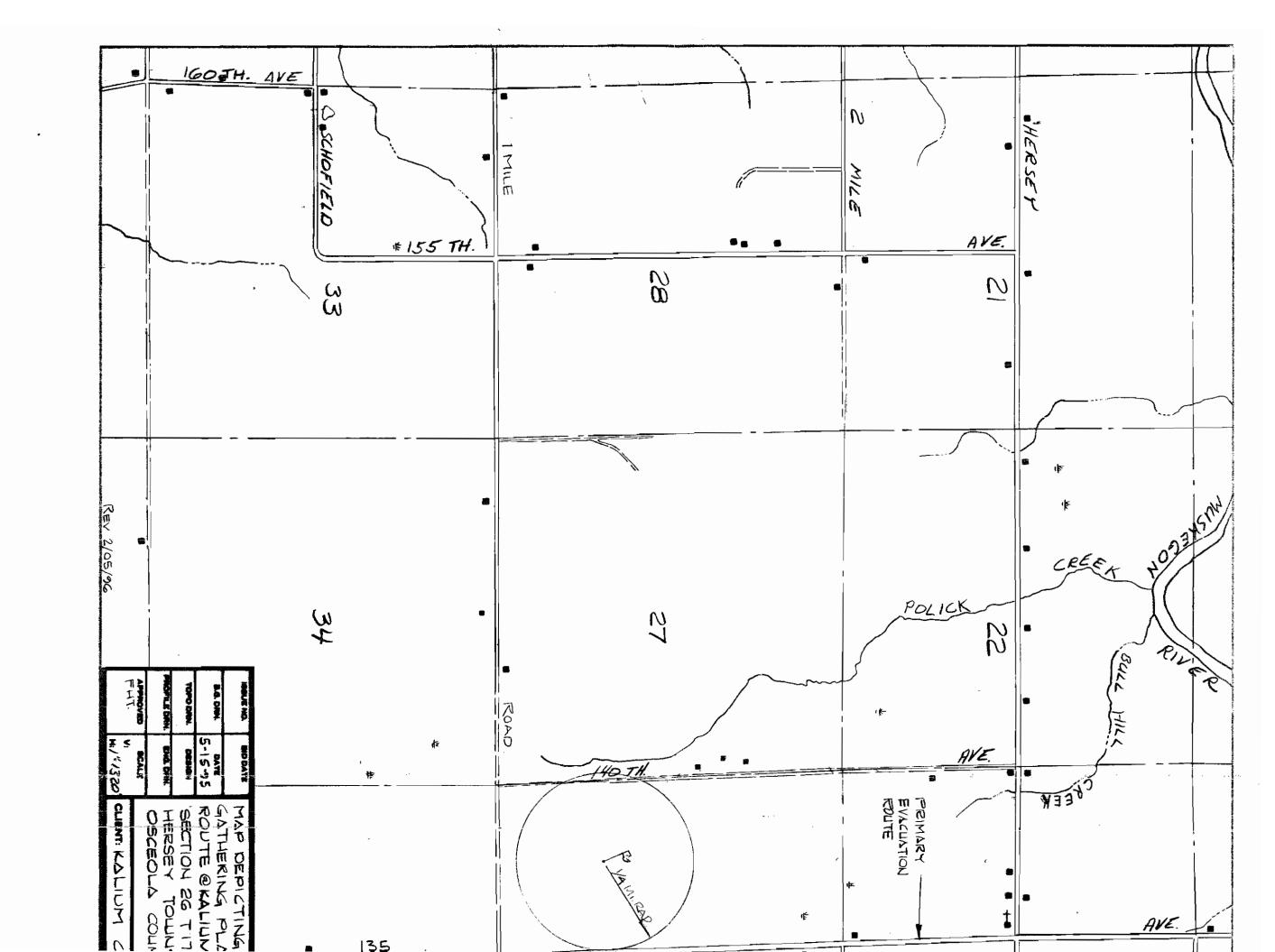
The nearest public telephone is located in front of the General Store in the town of Hersey It is located North 1/2 mile on 140th Avenue, then West 4 miles on Hersey Road to the general store in the town of Hersey, on 180th Avenue.

### MUD TREATMENT

A gas buster will be provided.

NOTE: For location of residences, public gathering places and evacuation routes, see vicinity map.





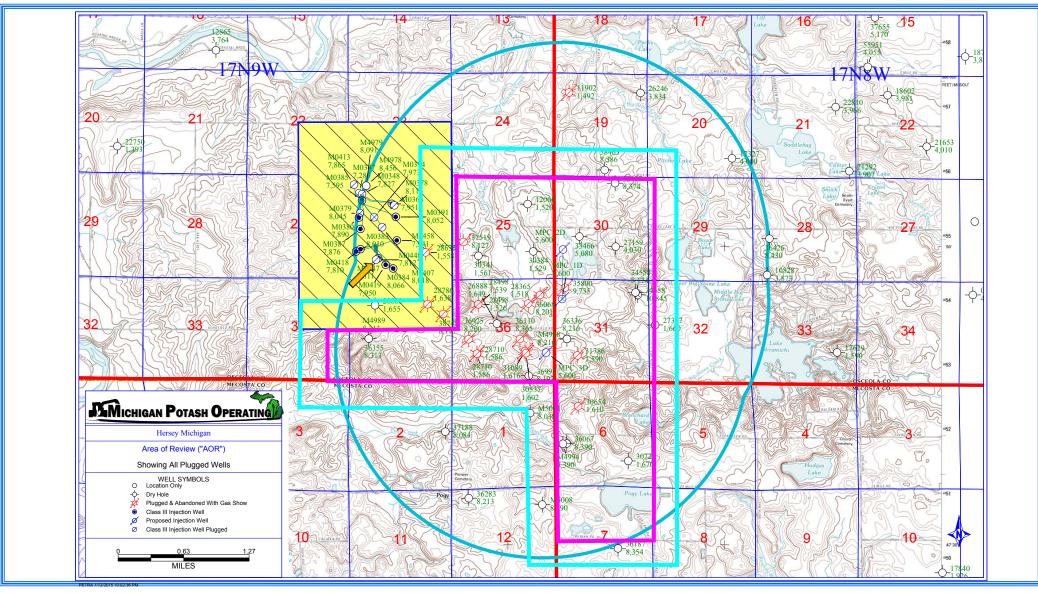
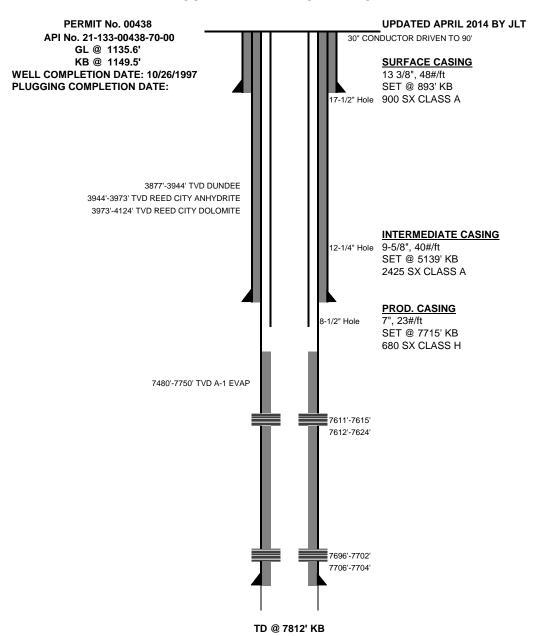


Figure B4. Map showing all plugged wells, shallow (that do not penetrate any confining horizon) or deep (that penetrate confining horzion) within the area of review. Total Depths are listed. There are several shallow Michigan Stray wells that do not penetrate the injection or confining horizon.

### **KALIUM 2082**

### SE NW SW Sec 26 T17N R9W OSCEOLA COUNTY, MI

### **CURRENT WELLBORE DIAGRAM**



#### **KALIUM 2082 WELL HISTORY**

<u>DATE</u> <u>DESCRIPTION</u>

9/21/1997 SPUD.

10/22/1997 DRILLING COMPLETED.

13 3/8" SET AT 925'; 715 SX CLASS A 9 5/8" SET AT 5205'; 2675 SX CLASS A 7" SET AT 7755'; 575 SX CLASS H

10/26/1997 WELL COMPLETED.

11/10/2007 WELL CASING REPAIR STARTED

12/5/2007 WELL CASING REPAIR COMPLETED. 4-1/2" CASING RUN TO 6000'.

8/31/2009? LOST MECHANICAL INTEGRITY. PULL 4-1/2" CASING. RAN WIRLINE SET BRIDGE AND SAT DOWN AT 5703'.

RAN 6" STRING MILL AND TRIED TO CLEAN OUT 7" CASING. COULD NOT GET BY 5703'.
RAN 6" FLAT BOTTOM MILL AND TRIED MILLING THROUGH. COULD NOT GET BY 5703'.
RAN 1-11/16" CCL. LOGGED FROM 5650'-5800'. APPEARS TO BE DAMAGED FROM 5703'-5714'.

RAN 3-1/8" CCL AND COULD NOT GET BY 5703'.

RAN 5-1/2" IMPRESSION BLOCK AND SAT DOWN AT 5703'. ONLY MARKS ON THE OUTSIDE OF THE BLOCK.

REQUEST SETTING A BRIDGE PLUG @ 5675' AND P & A WELL.

n ca			NT OF ENVIRONMENTA					
<b>DE</b> APPLICATION TO:			Permit number Type of weli					
CHANGE WELL STATUS OR			438Solution Mining					
			API number					
Required	by authority of Part 615 s s, of Act 451 PA 1994. as	Supervisor of We	ells or Part 625 Mineral	MI-133-3G-A002				
	tion of this information ma				ress of permittee			
_		•	•	Mosaic Potash Hersey				
	rt 615 Oil or Gas Well	X] P:	art 625 Mineral Well	1395 135 <sup>th</sup> Ave				
	well status requested to:			Hersey, MI				
☐ Plug ba			arily abandon	Well name and number				
☐ Conver		Other_		Kalium 2082 (Mosaic Potash)				
	ction/injection rate and typ			Well location				
	9 300/GPM Brine \	Nater		SE 1/4 of NW 1/4 of NW 1/4 Section 26 T 17N R 9W				
	iption of project			Township County				
	ıe pluq @ 5675' Set			Hersey		Osceola		
	ua Continue pluaain		ut and bull 7"	Date drilling co	ompleted	Date last produced/utilized		
	nd then plug to surfa	ce		1998		8/31/2009		
Work to be	•			Starting date				
Mosaic F	Pot <u>ash Hersey</u>					11/1/2010		
	0 11 11 0 116		CASING AND CEM			T	D. f. iii.	
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17 1/2"	13/3/8"	893'	900 Sacks Lite/A		<u>_</u>	Surface		
12 1/4"	9 5/8"	5139'	2425 Sacks Lite/A	<u> </u>		Surface		
8 1/2"	7"	7715'	680 Sacks Poz/H		1741-14179	4950'	761 <u>2'-</u> 7624'	
	1.00	11 61 11				<u> </u>		
	record (formation and dep	oth of top, oil, gas	s and water snows, etc.):					
formation	n depth							
Detail proposed procedures:  Set CIBP @ 5675' Set 100 Sack Class A plug on top of the bridge plug. Set 75 Sack Class A plug @ 5147'. Cut and pull 7" casing from 4741' to surface Set 180 Sack 50/50 Poz plugs every 500' from 4741' to 300' Set 108 Sack Class A plug from 300' to surface. Make certain of cement to surface and cut and cap 9 5/8" stub								
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				OCT <b>2 6</b> 2010				
, , , , , , , , , , , , , , , , , , ,				DNRE / ERMD OFFICE OF GEOLOGICAL SURVEY				
Name/signature (authorized representative): // // // // // // // // // // // // //			Date: 10/18/2010					
FOR OFFICE OF GEOLOGICAL SURVEY USE ONLY								
DEQ additional requirements:  NOTIFY MARK SMITH (231876 4434) AND RAY VUGRINOVICH (517 241 1532) AT LEAST  48 HOURS BEFORE PLUGGING BEGINS.								
Yes No Not applicable Production tests to commence within 10 days of completion and to be filed								
☐ Yes ☐ No Service company records are to be filed  ☐ No Service company records are to be filed								
Approved by DEQ: Office: LANSING Approval date: Termination Date: 11/9/2010 11/9/2011								
	) // Subyhi	t original and thr	ee (3) copies of this appli	cation to the Dis	trict Office within 60 day	ys ofchange of well s	status	
Note: Three copies of Record of Well Plugging or Change of Well status (EQP 7200-8) and any requested service company records are to be filed within 60 days of completion at the District Office								

EQP 7200-6 (rev 8/2004) side 1

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY WASHINGTON, D.C. 20460 PLUGGING AND ABANDONMENT PLAN Name and Address of Owner/Operator Name and Address of Facility Mosaic Potash Hersey Mosaic Potash Hersey 1395 135th Ave 1395 135th Ave Hersey, MI 49639 Hersey, MI 49639 County Permit Number Locate Well and Outline Unit on ΜI Osceola MI-133-3G-A002 Section Plat - 640 Acres Surface Location Description SE 1/4 of NW1/4 of NW1/4 of 1/4 of Section 26 Township /7 № Range \_09 W Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location Line of Quarter Section 1158 ft From (N/S) Ν And 1319 ft From (E/W) Line of Quarter Section TYPE OF AUTHORIZATION WELL Class I Hazardous Individual Permit ACTIVITY ... Nonhazardous Area Permit Class II Rule Brine Disposal Enhanced Recovery 🔲 Hydrocarbon Storage Number of Wells 18 Class III Kalium (Mosaic Potash) Lease Name Well Number 2082 CASING AND TUBING RECORD AFTER PLUGGING METHOD OF EMPLACEMENT OF CEMENT PLUGS TO BE LEFT IN WELL (FT) WT (LB/FT) TO BE PUT IN WELL (FT) HOLE SIZE ✓ Balance Method 30 " 90, 30" Dump Bailer Method 13 3/8" 54# 893' 17 1/2" Two Plug Method 9 5/8" 40# 5139 12 1/4" 4700' to 7715' 23 & 29 # 8 1/2" Other CEMENT TO PLUG AND ABANDON DATA: Plug #1 Plug #2 Plug #3 Plug # 4 Plug #5 Plug #6 Plug #7 Size of Hole or Pipe in Which Plug Will Be Placed (inches) CIBP 9 5/8 9 5/8 9 5/8 9 5/8" Depth to Bottom of Tubing or Drill Pipe (ft) 5675 5675 5141 4741' 4241 3241 3741 Sacks of Cement To Be Used (each plug) 100 Sks 75 Sks 180 Sks 180 Sks 180 Sks 180 Sks Sturry Volume To Be Pumped (cu. Ft.) 186.9 118.9 89.1 186.9 186.9 186.9 Calculated Top of Plug (ft.) 5141' 4741 4241 3741' 3241' 2741 Measured Top of Plug (if tagged, ft.) Slurry Weight (Lb./Gal.) 15.6 15.6 Type of Cement or Other Material (Class III) 50/50 Poz 50/50 Poz Class A Class A 50/50 Poz 50/50 Poz LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (If any) Τo From RECEIVED \$125,000.00 **Estimated Cost to Plug Wells** OCT 2 6 2010 OFFICE OF GEOLOGICAL SURVEY CERTIFICATION I certify under the penalty of law that I have examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting faise information, including the possibility of fine and imprisonment. (Ref.40 CFR 144.32) Name and Official Title (Please type or print) WILLIAM CHICKS MINEFIELD SUPERVISOR

EPA Form 7520-14 (Rev. 8-01)

OMB No. 2040-0042 Approval Expires 1/31/05 UNITED STATES ENVIRONMENTAL PROTECTION AGENCY WASHINGTON, D.C. 20460 PLUGGING AND ABANDONMENT PLAN Name and Address of Facility Name and Address of Owner/Operator Mosaic Potash Hersey Mosaic Potash Hersey 1395 135th Ave 1395 135th Ave Hersey, MI 49639 Hersey, MI 49639 Permit Number State County Locate Well and Outline Unit on MΙ Osceola MI-133-3G-A002 Section Plat - 640 Acres Surface Location Description Township /7N Range 09W N. SE-1/4 of NW 1/4 of NW 1/4 of 1/4 of Section 26 Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location 1158 ft From (N/S) Line of Quarter Section 1319 ft From (E/W) And Line of Quarter Section TYPE OF AUTHORIZATION WELL Class I Hazardous Individual Permit ACTIVITY Nonhazardous ✓ Area Permit Class II Rule Brine Disposal \_\_\_ Enhanced Recovery Hydrocarbon Storage Number of Wells ✓ Class III Lease Name Kalium (Mosaic Potash) 2082 Well Number CASING AND TUBING RECORD AFTER PLUGGING METHOD OF EMPLACEMENT OF CEMENT PLUGS WT (LB/FT) TO BE PUT IN WELL (FT) TO BE LEFT IN WELL (FT) HOLE SIZE S12E Balance Method 30 " 90' 30" 54# Dump Bailer Method 13 3/8" 893 17 1/2" 40# 5139 Two Plug Method 9 5/8" 12 1/4" 23 & 29 # 4700' to 7715' 8 1/2" Other CEMENT TO PLUG AND ABANDON DATA: Plug # 8 Plug #9 Plug #10 Plug #11 Plug #12 Plug #13 Size of Hole or Pipe in Which Plug Will Be Placed (inches) 9 5/8" 9.5/8 9 5/8 9 5/8 9.5/8" 9 5/8" 2741 1741 300' Depth to Bottom of Tubing or Drill Pipe (ft) 2241' 1241 741 180 Sks 159 Sks 108 Sks Sacks of Cement To Be Used (each plug) 180 Sks 180 Sks 180 Sks 186.9 Slurry Volume To Be Pumped (cu. Ft.) 186.9 186.9 186.9 165.9 127.4 Calculated Top of Plug (ft.) 22411 1741 1241 741' 300' Surface Measured Top of Plug (if tagged, ft.) Surface Slurry Weight (Lb./Gal.) 15.2 15 50/50 poz Type of Cement or Other Material (Class III) 50/50 poz 50/50 poz 50/50 poz 50/50 poz Class A LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any) Τo From \$125,000.00 Estimated Cost to Plug Wells OCT **2 6** 2010

CER	TIF	ICAT	ION

I certify under the penalty of law that I have examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately account to the control of th I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref.40 CFR 144.32)

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	otash Hersey	Enant (EE			Mosaic Potash Hersey				
1395 135t	· · ·				1395 135th Ave				
Hersey MI					Hersey, N				
Ticisey Wil	143000		STATE	COUNTY	ricidey, ii	111 40000		PERMIT NUMBER	
<u> </u>	ocate Well and O		MI						
<u> </u>	Section Plat - 64	10 Acres	SURFACE LOCATION DES						
ĺ	- N	ı <del>- , , , , , , , , , , , , , , , , , , ,</del>	SE 1/4 of NW 1/4	of NW 1/4 of 8	Section 26	TWP 17N Han	ge 9W	Title	
			Surface			OF GOARTER SECT	ION AND BAILLING	51411	
	<u> </u>			ft. From (N/S)		Line of Quarter	Section		
\	7	<u></u>	And1319	ft From (E/W)	<u>W</u>	Line of Quarter	Section		
<del> </del>		<del>-</del>	WELL ACTIVITY	Υ	Total Dept	h Before Rework	TYPE OF	PERMIT	
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<u>                                   </u>			Enhanced Reco	overv	Total Dept	h After Rework	✓ Area		
				•	5703				
			Hydrocarbon S	torage	Date Rewo	ork Commenced	Number	of Wells18	
<del> -</del>			Lease Name			9/7/2	009 Well Nur	nber 2082	
<u>                                   </u>	! ! .	! !			Date Rewo	ork Completed			
	ა		Kalium (Mosaic Pota			lugging permission	on		
			WELL CASING			REWORK			
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	US	E ADDITIONAL SHE	ETS IF NECESSARY	<u> </u>		Log	Types	Logged intervals	
Lost mecha	anical integrity-Pull	4 1/2" casing-Ran b	ridge plug and sat dov	vn at 5703'-Ran	6"	t.CL_		5650-58001	
string mill a	and tried to clean o	ut 7" casing unsucce	ssfully.Ran 6" flat bott	om mill and cou	ıld				
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from 5703'-	-5714 <sup>4</sup> . Ran 3 1/16	CCL and could not g	et by 5703'. Ran 5 1/2	2" impression bl	ock				
			showing marks on the						
block. We v	would request setti	ing a bridge plug @5	675' and P&A the well						
	document and a	III attachments and	at I have personally e that, based on my in nation is true, accura	quiry of those	am familiar individuals	s immediately re	sponsible for a	btaining the	
			ling the possibility o			(Ref. 40 CFR		oonanios rol	
NAME AND OF	FFICIAL TITLE		SIGNATURE					DATE SIGNED	
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OCT 2 6 2010

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY WASHINGTON, D. C 28400  WELL REWORK RECORD  AME AND ADDRESS OF PERMITTEE  (Poblic Place)  Magazia Potation Herrary 1395 13581 Aue Herrary, Mil 496539  Possen mustage Mil 1395 13691 Aue Herrary, Mil 496539  Possen mustage Mil 1395 13691 Aue Herrary, Mil 496539  Possen mustage Mil 1395 13691 Aue Herrary, Mil 496539  Possen mustage Mil 1395 13691 Aue 1158 4 Error (Rev) W	Later to the								IB No. 2040-0042 Expire	s 1/31/05
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AMAR AND ADDRESS OF PERMITTEE    Mosaic Potatish Hersey   1395 139th Ave   1395 139th Ave   1395 139th Ave   1395 139th Ave   1495 139th Ave	10 1 1882 (1 10)	555		WELI	<u>L REWOR</u>	K RECO	RD			
### 1385 139h Ave Herisey, Mil 49639 ### Herisey, Mil 49639 ### Herisey, Mil 49639 ### Herisey, Mil 49639 ### Herisey, Mil 49639 ### Herisey, Mil 49639 ### Herisey, Mil 49639 #### Mil 30 Section Dil Section Plut - 190 Acres ### Mil 30 Section Dil Section Dil Section Plut - 190 Acres ### Mil 30 Section Dil	AME AND	ADDRESS OF	PERMITTEE			NAME AND	ADDRE	SS OF CON	TRACTOR	
Hersey, Mil 49639	2007 Carried and Addison Addition	GET THE PERSON OF THE PERSON O				Mosaic Pot	tash He	ersey		
Section   Pair   Other   Pair   Other   Pair   Other   Pair   Other   Pair   Other   Pair   Other	395 135th	Ave				1395 135th	Ave			
Section Pail - 190 Acres   Section Pail - 190	550 P. V. C. C. C. C. C. C. C. C. C. C. C. C. C.	C. C. C. A.				Hersey, Mi	49639			. Washington
Section Plat - 640 Acree    Section   Plat - 640 Acree   Subsequence   Section 28 Twp 17N R 9W	\$16 hw(48)			STATE		<del>}</del>				PERMIT NUMBER
GCATE WILL IN YOUR DESCRIPTIONS PROVISED FROM SEARCHET LINES OF CAUSTER SECTION AND ORMAIN LIVES   Under the penalty of the									. The supplication of the	MI-133-3G-A002
Surface   Location   1158 ft From (N/S)   N   Line of Quarter Section   And   1319 ft From (E/W)   W   Line of Quarter Section   And   1319 ft From (E/W)   W   Line of Quarter Section   WELL ACTIVITY   Total Depth Before Rework   Total Depth Before Rework   Total Depth Before Rework   Individual   Ind		N N		SE 1/4 of NW 1/4 c	of NW 1/4 of S	Section 26 T	wp 171	V R 9W		
Femanced Recovery   Total Depth After Rework   Area   Ar	X	A		Surface Location 1158 And 1319	N L	ine of C	Quarter Section	on on	rest) ette in in dissense som, yr hys ysphysyddiau adau as, yrafn dishef all yr as	
Casing   Cement   Perforations   Acid or Fracture   Teatment		}	1	WELL ACTIVITY	7	Total Depth	Before	Rework	TYPE OF PERMIT	
□ Enhanced Recovery	v	4		Solution Mining	;	7715			Individual	
Date Rework Commenced Page 17/2009   2082				Enhanced Reco	overy	1	Afler R	ework	<u> </u>	), est of the second
Lease Name 9/7/2009    Date Rework Completed   N/C	1	jj		Hydrocarbon S	torage		ık Carr		# of Mallo 10	
WELL CASING RECORD - BEFORE REWORK  Casing: Cement Perforations Acid or Fracture Record Treatment Size Depth Sacks Type From To Record Record  3.3 Air 893 900 AA.I.te  7. 7715' 680 H   Great Perforations Acid or Fracture Record Record  WELL CASING RECORD - AFTER REWORK (Indicate Additions and Changes Only)  Casing: Coment Perforations Acid or Fracture Record  3.3 Air 893 900 AA.I.te  13.3 Air 893 900 AA.I.te  3.5 Indicate Additions and Changes Only)  Casing: Coment Perforations Acid or Fracture Record  3.3 Air 893 900 AA.I.te  7. 5703' 680 H   WIRE LINE LOGS, LIST EACH TYPE  USE ADDITIONAL SHEETS IF NECESSARY  Log Types Logged Intervals  Log Types Logged Intervals  Log Types Logged Intervals  1. Log Types Logged Intervals  1. Log Types Logged Intervals  1. S550-5800  Mental and tind do clean out 7 casing, could not get by 5703. Ran 6" flat bottom CCI S550-5800  Mental and tind milling through, could not get by 5703. Ran 11 flat CCL Logged Com S650-  1. S600-340-24 interession block and sal down at 5703. Only marks on the outside of the block.  We would request setting a bridge plug © 5675' and P8.4 the milcided.  CERTIFICATION  I certify under the penalty of law that i have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my Inquity of those Individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false Information is true, accurate, and complete. I am aware that there are significant penalties for submitting false Information is true, accurate, and complete. I am aware that there are significant penalties for submitting false Information is true, accurate, and complete. I am aware that there are significant penalties for submitting false Information is true, accurate, and complete. I am aware that there are significant penalties for submitting false Information is true, accurate, and complete. I am aware				Lease Name		Date Hewor	K Comi	1	# 01 44 8112 13	2082
WELL CASING RECORD - BEFORE REWORK  Casing Cement Perforations Acld or Fracture Record  13 3/8" 893" 900 ALT/Re RECORD - AFTER REWORK (Indicate Additions and Changes Only)  WELL CASING RECORD - AFTER REWORK (Indicate Additions and Changes Only)  WELL CASING RECORD - AFTER REWORK (Indicate Additions and Changes Only)  Casing Cement Perforations Acid or Fracture Treatment Size Depth Sacks Type From To Record  13 3/8" 893 900 ALT/Re RECORD - AFTER REWORK (Indicate Additions and Changes Only)  DESCRIBE REWORK OPERATIONS IN DETAIL  USE ADDITIONAL SHEETS IF NECESSARY  Log Types Logged Intervals  Lost mechanical interginy. Pull 4 1/2" casing. Ram wireline set bridge and sat down at 5703"  Ran 6" string mill and tried to clean out 7" casing, could not get by 5703". Ran 1 11/18" CCL. Logged from 5565  S800" Appears to be damage from 5703 - 5714" Ran 3 1/8 CCL and could not get by 5703". Ran 1 11/18" CCL. Logged from 5565  S800" Appears to be damage from 5703 - 5714" Ran 3 1/8 CCL and could not get by 5703". Ran 1 11/18" CCL. Logged from 5565  S800" Appears to be damage from 5703 - 5714" Ran 3 1/8 CCL and could not get by 5703". Ran 1 11/18" CCL Logged from 5565  S800" Appears to be damage from 5703 - 5714" Ran 3 1/8 CCL and could not get by 5703". Ran 1 11/18" CCL Logged from 5565  S800" Appears to be damage from 5703 - 5714" Ran 3 1/8 CCL and could not get by 5703". Ran 1 11/18" CCL and could not get by 5703". Ran 1 11/18" CCL and could not get by 5703". Ran 1 11/18" CCL and could not get by 5703". Ran 1 11/18" CCL and could not get by 5703". Ran 1 11/18" CCL and could not get by 5703". Ran 1 11/18" CCL and could not get by 5703". Ran 1 11/18" CCL and could not get by 5703". Ran 1 11/18" CCL and could not get by 5703". Ran 1 11/18" CCL and could not get by 5703". Ran 1 11/18" CCL and could not get by 5703". Ran 1 11/18" CCL and could not get by 5703". Ran 1 11/18" CCL and could not get by 5703". Ran 1 11/18" CCL and could not get by 5703". Ran 1 11/18" CCL and could not get by 5703". Ran 1 11/18" CCL and could not get	1. 3/		<u>iii.</u>			Date Rewor	rk Comp	oleted		
Casing   Cement   Perforations   Acid or Fracture   Record	<u> </u>							<u> </u>		<u> </u>
Size   Depth   Sacks   Type   From   To   Record				WELL CASIN	IG RECORD	- BEFOR	EREV	NORK		
13 3/8" 893 900 ALIte 95/8" 5139 2350 ALIte 17. 7715 680 H  WELL CASING RECORD - AFTER REWORK (Indicate Additions and Changes Only)  Casing Coment Perforations Acid or Fracture Record 13 3/8" 893 900 ALIte 13 3/8" 893 900 ALIte 95/8" 5139 2350 ALIte 7" 5703' 680 H  DESCRIBE REWORK OPERATIONS IN DETAIL USE ADDITIONAL SHEETS IF NECESSARY LOST mechanical intergrity. Pull 41 12" casing, could not get by 5703. Ran 6" flat bottom CCI 5650-5800  Mill and tried milling through, could not get by 5703. Ran 1 11/16" CCL Logged from 5650-5800  Mill and tried milling through, could not get by 5703. Ran 1 11/16" CCL Logged from 5650-5800  May would request setting a bridge plug © 5675' and P8A the well. P8A form included.  CERTIFICATION  I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attechments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment (Ref. 40 CFR 144 32)  NAME AND OFFICIAL TITLE  WELL CASING RECORD - AFTER REWORK (Indicate Additions and Changes Only)  Treatment	Ca	asing	Ci	ement	Perfo	orations		Acid or Fra	cture	Treatment
### WELL CASING RECORD - AFTER REWORK (Indicate Additions and Changes Only)  ### WELL CASING RECORD - AFTER REWORK (Indicate Additions and Changes Only)  ### Casing	Size	Depth	Sacks	Type	From	Τo			Record	,
WELL CASING RECORD - AFTER REWORK (Indicate Additions and Changes Only)  WELL CASING RECORD - AFTER REWORK (Indicate Additions and Changes Only)  Casing: Coment Perforations Acid or Fracture Treatment Size: Depth Sacks Type From To Record  Size: 883 900 ALlte  7' 5703 680 H  DESCRIBE REWORK OPERATIONS IN DETAIL  USE ADDITIONAL SHEETS IF NECESSARY  Log Types Logged Intervals  Log Types Logged Intervals  Log Types Logged Intervals  Cost mechanical intergrity. Pul 4 1/2' casing. Ran wireline set bridge and sat down at 5703'  Ran 6' string mill and fined to clean out 7' casing, could not get by 5703'. Ran 6' flat bottom  CCI 5650' 5800'  Mill and tried milling through, could not get by 5703'. Ran 111/16' COL. Logged from 5650-  S800'. Appears to be damage from 5703 9714'. Ran 3 1/8 CCL and could not get by 5703.  Ran 5 1/2' impression block and sat down at 5703'. Only marks on the outside of the block.  We would request setting a bridge plug © 5675' and P&A the well. P&A form included.  CERTIFICATION  I certify under the penalty of law that I have personally examined and familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete. I am wave that there are significant penalties for submitting false information including the peasibility of time and imprisonment (Ref. 40 CFR 144 32)	13.3/8"	893	900	A/Lite						
WELL CASING RECORD - AFTER REWORK (Indicate Additions and Changes Only)  WELL CASING RECORD - AFTER REWORK (Indicate Additions and Changes Only)  Casing. Coment Perforations Acid or Fracture Treatment Sizo. Depth Sacks Type From To Record  13 3/8" 893 900 ALLite  7' 5703' 680 H W WIRE LINE LOGS, LIST EACH TYPE  USE ADDITIONAL SHEETS IF NECESSARY  Lost mechanical intergrity. Pul 4 1/2" casing. Ran wireline set bridge and sat down at 5703' Ran 6" string mill and fined to clean out 7" casing, could not get by 5703'. Ran 6" flat bottom  Will and tried milling through, could not get by 5703'. Ran 1 11/16" COL. Logged from 5650-  BROOV. Appears to be damage from 5703 9714'. Ran 3 1/8 COL. and could not get by 5703'. Ran 6 1/2" impression block and sat down at 5703'. Only marks on the outside of the block.  We would request setting a bridge plug © 5675' and P8A the well. P8A form included.  CERTIFICATION  I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information in function file information I including the possibility of tine and imprisonment (Ref. 40 CFR 144 32)  NAME AND OFFICIAL TITLE  WIRE LINE LOGS, LIST EACH TYPE  Log Types  Logged Intervals  Log Types  Logged Intervals  CCI  5650' 5800  CERTIFICATION  I certify under the penalty of law that I have personally examined and am familiar with the information is into including the information I believe that the information in Including the possibility of tine and imprisonment (Ref. 40 CFR 144 32)	9 5/8"	5139	2350	A/Lite		1				
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WELL CASING RECORD - AFTER REWORK (Indicate Additions and Changes Only)  Casing Cament Perforations Acid or Fracture Treatment Size Depth Sacks Type From To Record  13 3/8" 893 900 ALRe  9 5/8" 5139 2350 ALILE  7' 5703' 680 H  DESCRIBE REWORK OPERATIONS IN DETAIL USE ADDITIONAL SHEETS IF NECESSARY Log Types Logged Intervals  Lost mechanical intergrity, Pull 4 1/2" casing, Ran wireline set bridge and sat down at 5703* Ban 6" string mill and tried to clean out 7" casing, could not get by 5703. Ran 6" flat bottom  CCI 5550-5800  mill and tried milling through, could not get by 5703. Ran 11/16" CCL. Logged from 5650-  5800'. Appears to be damage from 5703-5714. Ran 3 1/8 CCL and could not get by 5703.  Ran 5 1/2" impression block and sat down at 5703. Only marks on the outside of the block.  We would request setting a bridge plug © 5675' and P8A the well. P8A form included.  CERTIFICATION  I certify under the penalty of law that I have personally examined and am famillar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information 1 believe that the information including the possibility of fine and Imprisonment (Ref. 40 CFR 144 32)  NAME AND OFFICIAL TITLE  SIGNATURE  WELL RADITION  I certify under the penalty of law that I have personally examined and am famillar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information 1 believe that the information including the possibility of fine and Imprisonment (Ref. 40 CFR 144 32)					Y			·		na ma mananari nazmar saksteru jip is a is nespoje ispljita je a i, t v išelem r a v di
Casing: Cement Perforations Acid or Fracture Treatment Size. Depth Sacks Type From To Record  13 3/8" 893' 900 A/Lite  7' 5703' 680 H  DESCRIBE REWORK OPERATIONS IN DETAIL USE ADDITIONAL SHEETS IF NECESSARY  Log Types Logged Intervals  Lost mechanical intergrity. Pull 4 1/2" casing. Ran wireline set bridge and sat down at 5703' Ran 6" string mill and tried to clean out 7" casing, could not get by 5703'. Ran 6" flat bottom CCI 5650' 5800  Mill and tried milling through, could not get by 5703'. Ran 1 11/16" CCL. Logged from 5650-5600'. Appears to be damage from 5703'-5714' Ran 3 1/8 CCL and could not get by 5703'. Ran 1 10/16" CCL. Logged from 5650-5600'. Appears to be damage from 5703'-5714' Ran 3 1/8 CCL and could not get by 5703'. Ran 1 10/16" CCL. Logged from 5650-5600'. Appears to be damage from 5703'-5714' Ran 3 1/8 CCL and could not get by 5703'. Ran 1 10/16" CCL. Logged from 5650-5600'. Appears to be damage from 5703'-5714' Ran 3 1/8 CCL and could not get by 5703'. Ran 1 10/16" CCL. Logged from 5650-5600'. Appears to be damage from 5703'-5714' Ran 3 1/8 CCL and could not get by 5703'. Ran 1 10/16" CCL. Logged from 5650-5600'. Appears to be damage from 5703'-5714' Ran 3 1/8 CCL and could not get by 5703'. Ran 1 11/16" CCL. Logged from 5650-5600'. Appears to be damage from 5703'-5714' Ran 3 1/8 CCL and could not get by 5703'. Ran 1 11/16" CCL. Logged from 5650-5600'. Appears to be damage from 5703'-5714' Ran 3 1/8 CCL and could not get by 5703'. Ran 1 11/16" CCL. Logged from 5650-5600'. Appears to be damage from 5703'-5714' Ran 3 1/8 CCL and could not get by 5703'. Ran 5 11/16" CCL. Logged from 5650-5600'. Appears to be damage from 5703'-5714' Ran 1 11/16" CCL. Logged from 5650-5600'. Appears to be damage from 5703'-5714' Ran 1 11/16" CCL. Logged from 5650-5600'. Appears to be damage from 5703'-5714' Ran 1 11/16" CCL. Logged from 5650-5600'. Appears to be damage from 5703'-5714' Ran 1 11/16" CCL. Logged from 5650-5600'. Appears to be damage from 5703'-5714' Ran 1 11/16" CCL. Logged from 5650-5600'. Appears				A ASSESSMENT AND A STATE OF THE PROPERTY OF STATE OF THE PROPERTY OF THE PROPE	NOTICE BARROOM AND PRESIDENT			Control of Control	74.75	paragraphic and the second second second second second second second second second second second second second
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Casing: Cement Perforations Acid or Fracture Treatment Size. Depth Sacks Type From To Record  13 3/8" 893' 900 A/Lite  7' 5703' 680 H  DESCRIBE REWORK OPERATIONS IN DETAIL USE ADDITIONAL SHEETS IF NECESSARY  Log Types Logged Intervals  Lost mechanical intergrity. Pull 4 1/2" casing. Ran wireline set bridge and sat down at 5703' Ran 6" string mill and tried to clean out 7" casing, could not get by 5703'. Ran 6" flat bottom CCI 5650' 5800  Mill and tried milling through, could not get by 5703'. Ran 1 11/16" CCL. Logged from 5650-5600'. Appears to be damage from 5703'-5714' Ran 3 1/8 CCL and could not get by 5703'. Ran 1 10/16" CCL. Logged from 5650-5600'. Appears to be damage from 5703'-5714' Ran 3 1/8 CCL and could not get by 5703'. Ran 1 10/16" CCL. Logged from 5650-5600'. Appears to be damage from 5703'-5714' Ran 3 1/8 CCL and could not get by 5703'. Ran 1 10/16" CCL. Logged from 5650-5600'. Appears to be damage from 5703'-5714' Ran 3 1/8 CCL and could not get by 5703'. Ran 1 10/16" CCL. Logged from 5650-5600'. Appears to be damage from 5703'-5714' Ran 3 1/8 CCL and could not get by 5703'. Ran 1 10/16" CCL. Logged from 5650-5600'. Appears to be damage from 5703'-5714' Ran 3 1/8 CCL and could not get by 5703'. Ran 1 11/16" CCL. Logged from 5650-5600'. Appears to be damage from 5703'-5714' Ran 3 1/8 CCL and could not get by 5703'. Ran 1 11/16" CCL. Logged from 5650-5600'. Appears to be damage from 5703'-5714' Ran 3 1/8 CCL and could not get by 5703'. Ran 1 11/16" CCL. Logged from 5650-5600'. Appears to be damage from 5703'-5714' Ran 3 1/8 CCL and could not get by 5703'. Ran 5 11/16" CCL. Logged from 5650-5600'. Appears to be damage from 5703'-5714' Ran 1 11/16" CCL. Logged from 5650-5600'. Appears to be damage from 5703'-5714' Ran 1 11/16" CCL. Logged from 5650-5600'. Appears to be damage from 5703'-5714' Ran 1 11/16" CCL. Logged from 5650-5600'. Appears to be damage from 5703'-5714' Ran 1 11/16" CCL. Logged from 5650-5600'. Appears to be damage from 5703'-5714' Ran 1 11/16" CCL. Logged from 5650-5600'. Appears			INCLI CACINA	C DECODD AFTE		/ (In alia anta		*i== a=d	Changes Oals	
Size. Depth Sacis Type From To Record  13 3/8" 983' 900 A/Lite  9 5/8" 5139' 2350 A/Lite  7" 57/03' 680 H  DESCRIPE REWORK OPERATIONS IN DETAIL  USE ADDITIONAL SHEETS IF NECESSARY  Log Types Logged Intervals  Los mechanical intergrity. Pull 4 1/2" casing. Ran wireline set bridge and sat down at 5703'  Ran 6" string mill and fined to clean out 7" casing, could not get by 5703". Ran 6" flat bottom  CC) 5650'-5800'  mill and tried milling through, could not get by 5703. Ran 1 11/16" CCL. Logged from 5650- 5800'. Appears to be damage from 5703-5714" Ran 3 1/8 CCL. Logged from 5650- 5800'. Appears to be damage from 5703-5714" Ran 3 1/8 CCL. Logged from 5650-  Ran 5 1/2 impression block and sat down at 5703'. Only marks on the outside of the block.  We would request setting a bridge plug © 5675' and P&A the well. P&A form included.  CERTIFICATION  I certify under the penalty of law that i have personalty examined and mamiliar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment (Ref. 40 CFR 144 32)  NAME AND OFFICIAL TITLE  SIGNATURE  DATE SIGNED	a bada , ana radangala salah kebabah dalah dari salah salah salah salah salah salah salah salah salah salah sa						AUUI			Tunning
13 3/8" 893 900 A/Lite 9 5/8" 5139' 2350 A/Lite 7' 5703' 680 H  DESCRIBE REWORK OPERATIONS IN DETAIL USE ADDITIONAL SHEETS IF NECESSARY Log Types Logged Intervals Lost mechanical intergrity. Pull 4 1/2" casing. Ran wireline set bridge and sat down at 5703' Ran 6" string mill and tred to clean out 7" casing, could not get by 5703'. Ran 6" flat bottom mill and tried milling through, could not get by 5703. Ran 1 11/16" CCL. Logged from 5680- 5800'. Appears to be damage from 5703-5714'. Ran 3 1/8 CCL and could not get by 5703'. Ran 5 1/2" impression block and sat down at 5703'. Only marks on the outside of the block. We would request setting a bridge plug @ 5675' and P&A the well. P&A form included. CERTIFICATION  I certify under the penalty of law that i have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information 1 believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment (Ref. 40 CFR 144 32)  NAME AND OFFICIAL TITLE  SIGNATURE  OATE SIGNED					1	<del></del>		ACIO OF FE		rreaument
9 5/8" 5139 2350 A/Lite  7" 5703' 680 H  DESCRIBE REWORK OPERATIONS IN DETAIL.  USE ADDITIONAL SHEETS IF NECESSARY  Log Types Logged Intervals  Log Types Logged Intervals  Log Types Colored Intergrity, Pull 4 1/2" casing. Ran wireline set bridge and sat down at 5703'  Ran 6" string mill and tried to clean out 7" casing, could not get by 5703'. Ran 6" flat bottom  CCI 5650'-5800  mill and tried milling through, could not get by 5703'. Ran 1 11/16" CGL. Logged from 5650-5800. Appears to be damage from 5703-5714. Ran 3 1/8 CGL and could not get by 5703'.  Ran 5 1/2' impression block and sat down at 5703'. Only marks on the outside of the block.  We would request setting a bridge plug © 5675' and P&A the well. P&A form included.  CERTIFICATION  I certify under the penalty of law that i have personalty examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information 1 believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment (Ref. 40 CFR 144.32)  NAME AND OFFICIAL TITLE  SIGNATURE  OATE SIGNED					From	10			Recoru	
DESCRIBE REWORK OPERATIONS IN DETAIL.  LISE ADDITIONAL SHEETS IF NECESSARY  Log Types  L	13 3/8"	'883,		<del></del>	ļ	_ <b>_</b>				
DESCRIBE REWORK OPERATIONS IN DETAIL.  USE ADDITIONAL SHEETS IF NECESSARY  Log Types  Logged Intervals  Lost mechanical intergrity. Pull 4 1/2° casing. Ran wireline set bridge and sat down at 5703°  Ran 6° string mill and tried to clean out 7° casing, could not get by 5703°. Ran 6° flat bottom  CCI  5650° 5800°  Mill and tried milling through, could not get by 5703°. Ran 1 11/16° CCL. Logged from 5650-5800°. Appears to be damage from 5703° 5714°. Ran 3 1/8 CCL and could not get by 5703°.  Ran 5 1/2° impression block and sat down at 5703°. Only marks on the outside of the block.  We would request setting a bridge plug © 5675° and P&A the well. P&A form included.  CERTIFICATION  I certify under the penalty of law that i have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquity of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment (Ref. 40 CFR 144 32)  NAME AND OFFICIAL TITLE  SIGNATURE  DATE SIGNED		5139	2350	A/Lite						
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Log Types Logged Intervals  Log Types Log Types Log Types  Log Types Log Types Log Types  Log Types Log Types Log Types  Log Types  Log Types Log Types  Lo		DF	SCRIBE REWORK	OPERATIONS IN DET	AIL.			WIF	E LINE LOGS, LIST EAC	HTYPE
Lost mechanical intergrity, Pull 4 1/2" casing. Ran wireline set bridge and sat down at 5703"  Ran 6" string mill and tried to clean out 7" casing, could not get by 5703". Ran 6" flat bottom CCI 5650-5800' milt and tried milling through, could not get by 5703". Ran 1 11/16" CCL. Logged from 5650-5800' 5800". Appears to be damage from 5703"-5714". Ran 3 1/8 CCL and could not get by 5703".  Ran 5 1/2" impression block and sat down at 5703". Only marks on the outside of the block.  We would request setting a bridge plug © 5675" and P&A the well. P&A form included.  CERTIFICATION  I certify under the penalty of law that i have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment (Ref. 40 CFR 144-32)  NAME AND OFFICIAL TITLE  SIGNATURE  DATE SIGNED			V-1 (197) 1 1 1 1 1 1 1 1	, , ,						
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5800'. Appears to be damage from 5703'-5714'.Ran 3 1/8 CCL and could not get by 5703'.  Ran 5 1/2' impression block and sat down at 5703'. Only marks on the outside of the block.  We would request setting a bridge plug @ 5675' and P&A the well. P&A form included.  CERTIFICATION  I certify under the penalty of law that i have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment (Ref. 40 CFR 144-32)  NAME AND OFFICIAL TITLE  SIGNATURE  DATE SIGNED	·				·		001			3000-3000
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CERTIFICATION  I certify under the penalty of law that i have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information is believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment (Ref. 40 CFR 144.32)  NAME AND OFFICIAL TITLE  SIGNATURE  DATE SIGNED						. /	<u></u>		Plant bankan serias sa anarawa ara a saring salah salah katalah salah salah salah salah salah salah salah salah	
I certify under the penalty of law that i have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment (Ref. 40 CFR 144.32)  NAME AND OFFICIAL TITLE  SIGNATURE  DATE SIGNED	We would r	equest setting a	a bridge plug @ 567:	5' and P&A the well. P&,	A form included	l,				
	e de la companya de l	and all attach	ments and that, bas he information is tru	sed on my inquiry of thue, accurate, and comp	examined and nose individual plete, i am awa	am familiar Is immediate are that then	ely resp e are si	onsible for	obtaining the information	1.1
	NAME AND O	FFICIAL TITLE		SIGNATURE		··				DATE SIGNED
FPA Form 7520-12 (Rev. 8.01)										
FPA Form 7520-12 (Rev. 8 01)										
	EPA For	m 7520-12 /F	Rev. 8 011							

	Was	hington D							
<b>SEPA</b> PLUGGI	NG AND	) ABAI	NDONME	NT PLA	N				
Name and Address of Facility		1		me and Address of Owner Operator					
Mosaic Potash Hersey		N	Aosaic Polash 395 135th Av	Heisey e Hersev M	1 49639				
1395 135th Avo Hersey MI 49639						Permit N	umber		
Locate Well and Outline Unit on Section Plat - 640 Acres	State [M]			eesta			-3G-A002		
	Surface Location Description								
N	1/4 of SE 1/4 of NW 1/4 of NW 1/4 of Section 26 Township 17n Range 9W								
	Locate well in two directions from nearest lines of quarter section and drilling unit								
	Surface								
10000000	Location / 10 ft. frm (N/S) N Line of quarter section and 131 ft. from (E/M) W Line of quarter section.								
					ction.	WELL A	CTIVITY		
M minimum de management de la company de la	1	TYPE OF A Adual Pert	NUTHORIZATIOI mit	•	CLAS				
	Area				CLAS				
	Rule				B	ine Disposa	ıl		
	Number	of Welis	8			manced Rea			
	1.01.1.261	J on 3	a constanting		H	/drocarbon	Stotađe		
L_i_i_i_i_i	-	Valine	n things Pa	rach i	1	2005			
S	Lease Nar	me ;	n (Mosaic Po		Wall Numb	ALTERNATION OF THE PERSON NAMED IN	May 1		
CASING AND TUBING RECORD AFTE	R PLUGGING	3		METH	OD OF EMPL	ACEMENT O	F CEMENT P	LUGS	
	ELEFT IN W	ELL (FT)	HOLE SIZE	(Z) The	e Salance Me	thod			
13 3/8 54# 893		<u></u>	17 1/2		. Dump Baile				
6 5/8 40# (5139			12 1/4		a Two∙Plug M	etnod			
7 218-29# 1700	7715'	<u> </u>	81/2	i LiOm	ter				
CEMENTING TO PLUG AND ABANDON DATA:		PLUG#1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7	
Size of Hole or Pipe in which Plug Will Se Placed (inche		CIBP	7"	179	9.5/8"	9.5/8"	9.5/8	9.578"	
Depth to Bottom of Tubing or Drill Pipe (ft		5675	5675	514)'	474]	4241	3741	3241	
Sacks of Cement To Be Used (each plug)		Parameter Ch	100Sks	75 Sks	180 Sks	180 Sks	180 Sks	180 Sks	
Siurry Volume To Be Pumped (cu. fl.)			118.5	89.1	186.9	186.9	186.9	186.9	
Calculated Top of Plug (R.)		<u> </u>	5141	4741	4241'	3241	13241	2741	
Measured Top of Plug (if tagged it.) Sturry Wt. (Lb./Gal.)	· · · · · · · · · · · · · · · · · · ·	1	15.6	15.6	15.0	15.0	15.0	115.0	
Type Cement or Other Material (Class III)		1 22	Class A	Class A	50/50po	50/50 po	50/50 po	50/50 po	
LIST ALL OPEN HOLE AND/OR PERFO	ORATED INT	ERVALS A	Series I I de la constantina del constantina de la constantina de la constantina de la constantina de la constantina de la constantina del constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina del constantina del constantina del constantina del constantina del constantina del constantina del constantina del constantina del	WHERE CA		E VARIED (II	any)		
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				<del>1</del>					
Estimated Cast to Plug Wells									
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		C	Sold Military and the second		2000-2000-000				
		Certific							
I certify under the penalty of law that I have person attachments and that, based on my inquiry of thos information is true, accurate and complete. I am a	e individual: aware that the	s immedia	tely responsib	ie for obtaini	ing the inforc	nation, I bet	ieve that the		
possibility of fine and imprisonment (Ref. 40 CFR	: 144 32)		- combana - Landard - Land						
Name and Official Title (Please type or print)	Sig	nature					Date Signed	3	

,O, 1	EPA				вW	shington	DC 2		,				
7.5	may 61 15 15.		PLU	GGIN	IG ANI	D ABA	INC	ONME	ENT PL	AN			
Mos	and Address of F sic Potash Hers 135th Ave Her	2y	-				Mos	aic Potasi	ess of Owner Hersey vc Hersey		and the second		
	ocate Well and di				State County M1 ! Oscola				,	Permit Number M1-133-3G-A002			
- A		N		***	Surface Location Description								
newson [	TTT	1	T		1.4 of 50 1.4 of nw 1,4 of nw 1,4 of Section 26 Township 17n Rango 9w								.9w
The multi gent abble of the state of the sta			1 - 1	1	Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location // On the (N.S) N. Line of quarter section								
WPC SELECTION OF THE PERSON OF	1 1 1				and /3/9				of querter se	etion.			
W management and management and a					∐ Indi ☑ Alex ☐ Ruli	viduat Pe: i Permii		HORIZATION	N	CLA:	ss :	ACTIVITY	
We will be to be a color of a table of the color of the c	as and a second					of Wells		Aosaic Pot	rahi	1			
			Lease Na	nte	erenneren	NOSARC I DE	ensii)	Well Num	bei 2082	gerbanian properties of	Committee of the Commit		
	C.	ASING AND TUR	ING RECORD	AFTER	PLUGGIM	3			METHOD OF EMPLACEMENT OF CEMENT PLUGS				
SIZE	WT (LB/FT)	TO BE PUT IN	METIT (E.L.)		LEFT IN W	ELL (FT)	The parance s			e Balance Me	ethod		
13.3/	8 54#	*		8931	=			1/2	****	e Dump Baile			
19.5/8 1.7	23&29#	<del>                                     </del>		3139' 4700-7	The state of the s			1/4	5 3	e Two-Plug i	delnod		
1					<u> </u>	in - François 	1		On	TRY			
	CEMENTING	3 TO PLUG AND	ABANDON DA	ATA:		PLUG #	8	PLUG 🚧	PLUG #/6	PLUG 444	PLUG #4	A PLUG #45	PLUG #
3	f Hole or Pips in			inche		9.5/8"	TS	3/8"	9 5/8"	9.5/8"	9.5/8"	9.5/8	
*	to Bottom of Tu					.2741		2241	1741	[124]	741	300	
<del></del>	of Cament To Be P		9)			180Sks		180Sks	180_Sks	180 Sks	159 Sks	108 Sks	
ţ	aled Top of Plug					186.9	-		186,9	186.9	165.9	127.4	
Ř	red Top of Plug			******		2241		741	1241	741	300,	Surface	
Sturry	Wt (Lb./Gal.)					15.0	-1	5.0	15.0	15.0	15.0	Surface 13.2	12-782-1-1-1-1
Туре С	ement or Other	Material (Class I	(1)			50/50 p			50/50 Po	50/50 Po	50/50 Po	Class A	Angelong services
	Lis	ST ALL OPEN HO	DLE AND, OR	PERFOR	ATED INT	ERVALS A	ND II	TANK TO SEE SALES	Children in Production in Contract	A STATE OF THE PARTY OF THE PAR	E VARIED (	The second second	al established distance of the printing of
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75.00	00.00				17 <b>%</b> 1700, 1000	to make the second second second			The second second second	- 15 - 148# (1888) 1			9 4 5 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5
	certify under the attachments and information is tru possibility of fine	e, accurate, and	iry inquity of I complete I	เกษรอง ไฮภาลพล	y examine adividuals	TO PERMIT	lamii	liar with th	i for chinini	~~ 41. ~ 1.24			4
Name a	and Official Title	(Please type or	print)		Sign	ature			franklikki ,			Date Signed	
and the second		One business and the same of t											

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L		<b>5</b> .7

RECORD OF WELL PLUGGING

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY - OFFICE OF GEOLOGICAL SURVEY

Permit number

Well name and number

Required by authority of Part 615 Supervisor of Wells or Part 625 Mineral Wells of Act 451 PA 1994 as amended Non-submission and/or falsification of this information may result in fines and/or imprisonment

OR CHANGE OF WELL STATUS

API number
MI-133-3G-A002
Name and address of permittee

Mosaic Potash Hersey

Mosaic Potash Hers 1395 135<sup>th</sup> Ave Hersev. Mi 49639

Date plugging/change started

11/10/2007

Part 615 Oil/Gas Well Plugging

☐ Part 625 Mineral Well ☐ Change of Well Status

Name and address of contractor/service company

Mosaic Potash Hersey 1395 135<sup>th</sup> Ave Hersey, Mi 49639 Type of well

Solution Mining
Surface location
SE 1/4 NW 1/4 SW1 /4 Sec 26 T 17N R 9W
Township
County
Hersey

Field name
Kalium

Surface location
County
County
County

12/5/2007

Date issued

Date plugging/change completed

DEQ employee issuing plugging permit or approving Change of Well Status

Rav Vuorinovich

Any change of well status which results in a change of production or a change in injectivity must include production or injection test records. All records must include a narrative or daily chronology and signed certification noted on reverse.

					WELL PLUGGING conditions after plu				
					CASING	<u> </u>			
Ca	asing size		Where s	et	Amount cas	ing pulled	Depth casing cut/per	fed; or windo	ws milled
								3/	
			<u> </u>						_
			- Indexa massage	wasens	PLUGS	1 4 1 100	1 1/1		Tanad
Depth o	of niuo		take and type orioge or plug	Cement plugs: type amount of cement &		Additives,type and percent	Volume and types of spacers/flushes	Wait time	Tagged Top?
Bottom	Top	UI	onoge or plug	amo	mix water		Oi spaceis/ilusiles	yvait tillie	Y/N
Dottom	TOP				TIIX Water		<del>-</del>		
						<del> </del>	100000		
								<del></del>	
						_			
							10000		
							-		
☐ Check if	NORM or oth	er mate	erials were left or rei	nserted into v	vellbore. If so, describe	materials fully in the	Daily Chronology sect	ion on revers	e.
Check if	cores were ta	ken an	id attach core descri	ptions					

Mail completed original and three copies to the appropriate DEQ district office within 60 days after completion of plugging/change of a Part 615 oil/gas well or within 30 days of a Part 625 mineral well.

OFFICE OF GEOLOGICAL SURVEY MICHIGAN DEPT OF ENVIRONMENTAL QUALITY PO BOX 30256 LANSING, MI 48909-7756

API num MI-133-	nber 3G-A002					Permit num 438	ber				
Change w	una to: F	7			ANGE OF W						
Change w	vas 10.       [	Convert currer Productio Disposal Secondar Storage Other	n	⊠Re	Perf and test existing zone  Repair casing/cement  Dispo			ondary recov age	zone	Collaps	ntal drain hole sed casing eam open hole
				Well ca	asing record	- BEFORE cl				housed	
	asing		ment	_	Perfora						
Size 13 3/8	Depth 893'		Type	From	То	If plugged,	HOW?	A	cid or fra	cture treatme	ent record
9 5/8	5139'	900 2425	A							_	
7	7715'	680	H								
Ca	asing		record - AF	TER change	(Indicate ad Perfora		hanges	only, compl	ete test	record)	SC U KWAY
Size	Depth	Sacks	Туре	From	То	If plugged,	HOW?	A	cid or fra	cture treatme	ent record
7	7715'	680	H					Casing p	atch ins	stalled at 2	851'
	The state of the s	BEFOR	RE CHANGE	A COMMISSION OF THE PROPERTY O				AFTE	R CHAN	IGE	
Total dept		Completed Fm	Well comp			Total depth		npleted Fm	Well	completed for	
BOPD	-	MCFGPD	Inj Rate		ssure	BOPD		FGPD	lnj R		Pressure
<u> </u>	L Oil	OAILY PRODUC Water	Gas Gas		ssure	DAILY INJE	CTION T		• • • • • • • • • • • • • • • • • • • •	njection well ssure	Brine disposal Specific gravity
Date	(bbis)	(bbls)	(Mcf)	Tubing	Casing	Date	or Mcf		ginning	Ending	of water
									_		
		ļ			DAILY CHR		,		100-10-11-11		
left in hole	n detail the o	daily chronology o s run Include da	f change/plugg tes pits filled s	ing, include da	ys shut down	Describe excep	otions to is needed	sued plugging	instruction	ons. Describe	tools, tubing etc
Date	Narra										
11/13/07 11/16/07 11/20/07 11/27/07	7 Run 7 Four 7 past	nd hole at 6' b experience v	g for hole a below wellhe we cut and p	it various de ead Cut of oulled 1520	epths- intitia f 7 inch at 7 ' of 7 inch c	il packer wa feet below asing, dress	as leakir wellhea sed of ti	ng by, rente d. Pulled s he 7 inch s	lips an tub and	d 7 inch sti d patched t	the 7 inch at
11/29/07 11/30/07	1520'. Pressure up the 7"and still had a leak, pulled more on the patch and parted the pipe @ 2851'  11/29/07 Pulled 7 inch casing- Ran packer and tested below the parted pipe all ok.  11/30/07 Dressed off the top of the 7 inch Run 7 inch casing and casing patch. Set patch at 2851' Weld on wellhead										
12/4/07	1 1	ed casing -M									
NOTICE: I of a plugge CERTIFIC	Under Part ed well. CATION 'I s		of Wells or Pa	ort 625 Minera	ll Wells Act 45 ils report was p	51 PA 1994 as prepared unde	s amende	d a well own	er has co	ontinuing liab	ility for the integrity
ROBERT	Se Hus	ed or typed) E <i>lTZER 12</i> t be terminated u	ReDivertia	√ 5⊿ <i>P ]</i> s completed	Autho	rized signatur Releast mouse holes.	e Sch and pits f	witze	eled and	cleaned and	Date 12/5/a 7 records filed.

DE® MICHIGA	AN DEPARTMENT OF ENVIRON				
	NOTED OF DEDMIT	Permit number M-438	Well type Brine Prod.	Current true v 7565	ertical depth
REQUEST FOR THE	ANSFER OF PERMIT	Well name and nu		/505	
Required by authority of Part 615		Kalium Harsov			
Mineral Wells, Act 451 PA 1994 as falsification of this information may r		JI			
,			/ 1/4 SW 1/4	4 Section 26	T17N R9W
Part 615 Oil/Gas Well	🛛 Part 625 Mineral Well	Township		County	
NOTE: Flickly for a single in a single		Hersey	file Deserted of F	Osceola	orlite Describe shall
NOTE: Eligibility for permits is conditi- not be transferred to persons not in co- conditions at the well site until compli- This permit does not convey prop private or public rights nor does it	ompliance. A permit for a well shance is achieved The acquiring erty rights in either real estate	nall not be transferred if the permittee shall attach a cu or material nor does it a	e permittee is under n urrent Organization R uthorize any injury t	otice because of eport (EQP 7200 o private proper	unsatisfactory -13) ty or invasion of
	TRANSFE	R OF A PERMIT FROI	VI:		
Name(s) of Selling Permittee(s)				Fed. I.D # or	
IMC Kalium, Limited Address: Number and Street, City or	Town State 719 Code Telephon			3 <u>8</u> -35455	
1395, 135th Avenue	Town, State, Zir Gode Telephols	e e		231-832-3	755
Hersey, MI, 49639				201 002 0	700
All permits rights and responsibilities	are discharged by:				
IMC Kalium Limited Permittee	Colin Howard Authorized represe	entative name	Signa	ture .	16/04/2001 Date
Permittee	Authorized represe	entative name	Signa	ture	Date
Permittee	Authorized represe	entative name	Signa	ture	Date
	TRANSI	FER OF A PERMIT TO:			<u> </u>
Name(s) of Acquiring Permittee(s):				Fed ID.# or	\$ S #
IMC Potash Hersey Inc. Address: Number and Street, City or	Town, State ZIP Code	ACT CHARGES		ME013218 Telephone	34
1395 135th Avenue				231-832-3	755
Hersey MI. 49639				207 602 0	
(We are) (I am) an owner or authorize abandonment in conformity with the la		the well under this permit	and assume full respo	onsibility for the c	Irilling, operation, and
	ttached Surety or Bank	Royal Bank of Canada			
<u> </u>	n File Bond Number	P43087C00008	Amount:	\$25 <u>,000</u>	
Statement of Financia	· · · · · · · · · · · · · · · · · · ·				
All permittee rights and responsibilitie	s are assumed by:		D41	10	

IMC Potash Hersey Inc. 16/04/2001 Colin Howard Permittee Authorized representative name Signature Date Permittee Authorized representative name Signature Date Permittee Authorized representative name Signature Date

FOR DEPARTMENT OF ENVIRONMENTAL QUALITY USE ONLY MAY 0 8 2001

Distribution by DEQ Lansing ☐ Selling Owner

Date

☐ Field

Acquiring Owner

EQP 7200-7 (Rev 3/99)

Approved

Mail Original and 3 copies to:

Signature

GEOLOGICAL SURVEY DIVISION MICHIGAN DEPT OF ENVIRONMENTAL QUALITY

PO BOX 30256

LANSING MI 48909-7756

		UNITED	STATES ENVI	RONMENTAL !	PROTECTION	AGENCY	
			WAS	HINGTON, DC	20460		
<u>EPA</u>			WEL	L REWORK RE	CORD		
NAME AND	ADDRESS C	OF PERMITTEE		NAME AND A	DDRESS OF C	ONTRACTOR	
IMC Kalium	Ltd			IMC Kalium L	td		
1395 135th /	Avenue			1395 135th A	venue		
Hersey, MI	49639			Hersey, MI 4	9639		
LOCATE WE	ELL AND OU	TLINE UNIT ON	STATE	COUNTY		PERMIT NUM	BER ida
SECTIO	N PLAT 64	40 ACRES	Mi	Osceola		MI-133-3G-A00	D2 M438
	N		SURFACE LO	OCATION DESC	CRIPTION		
	ļ		_SE1/4 of _N	<u>W</u> 1/4 of <u>SW</u> 1/	/4 of 1/4 of \$	Section26_ Tov	vnship <u>17N</u> Range <u>9W</u> _
-							ection and drilling unit
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l x	<del>                                     </del>	<del>                                     </del>	WELL ACTIV		Total Depth B		TYPE OF PERMIT
			Brine Dis		7715		Individual
				d Recovery	Total Depth A	fter Rework	X Area
<u> </u>	S	<u></u>		rbon Storage	7715	.totowork	Number of Wells 17
			Ndrocal	•	Date Rework	Commenced	
			Lease Name	9	9/12/2000	oon more con	Well Number
			Kalium Herse	ı.	Date Rework (	Completed	2082
			(Allum Herse)	у	11/3/2000	Sompleted	2002
		14	ELL CARING!	BECORD BE	ORE REWORL		
	asing	Cemen		Perforation			Acid or Fracture
	asing	Sacks		From	To		reatment Record
Size	Depth		Туре	From	10	<u> </u>	reatment Record
30	90	Driven 900	^	7.2	111111111111111111111111111111111111111		
13 3/8 9 5/8	893	2425	A I				
7	5139 7715	680	Н	7611	7615		
7	7713	000		7011	7010		
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	sing	Cement		Perforation			Acid or Fracture
Size	Depth	Sacks	Туре	From	To		reatment Record
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				-0-mic	<u> </u>		
D-	ooriba rows-l	k aparations in d	otail			Afire line less 1	et each type
		k operations in d				Wire line logs, li	st each type Logged intervals
	e additional s	sheets if necessa	<u></u>		Log Types	S	Logged intervals
_and at 7617							
							1,7 to
	VA-TAX BELL COMMUNICATIVATIVA	-		APATIFICATE:	<u> </u>		
				CERTIFICATIO			1 10 11 11
•		y of law that I have					
							sible for obtaining
the informa	ation, I believ	e that the inform	ation is true ad	ccurate and co	mplete I am av	ware that there	are significant
penalties	for submittin	ng false informati	on, including th	ne possibility of	fine and impris	onment. (Ref. (	
NAME AND O	FFICIAL TIT	LE (Please type	or print)	SIGNATURE	To and the second		DATE SIGNED
(yle Barbot					And the second		12-1-00
Vinefield Sup	envisor				TO REAL PROPERTY AND ADDRESS OF THE PARTY AND		1010

		UNITED :		RONMENTAL		AGENCY				
	WASHINGTON, DC 20460									
EPA			WELI	ELL REWORK RECORD						
NAME AND	ADDRESS C	F PERMITTEE		NAME AND A	DDRESS OF C	ONTRACTOR				
iMC Kalium,	Ltd			IMC Kalium, L	.td.					
1395 135th A	Avenue			1395 135th A	venue					
Hersey, MI	49639			Hersey, MI 49639						
LOCATE WE	LL AND OU	TLINE UNIT ON	STATE	COUNTY		PERMIT NUME	3ER			
SECTIO	N PLAT - 64	10 ACRES	МІ	Osceola MI-133-3G-A002 M438						
	N		SURFACE LO	LOCATION DESCRIPTION						
1			SE1/4 of _N	W1/4 of _SW1/	/4 of 1/4 of	Section26_ Tow	vnship <u>17N</u> Range <u>9W</u>			
<del>    -</del>					_	_	ection and drilling unit			
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l w <del>l l</del>	<del>                                     </del>	├ <del></del> ┼┤⋹	Surface Loca	tion1158ft from	n (N/S) N Lin	e of quarter sec	tion			
l " <del>[- -</del>	<del>                                     </del>	<del>-   -  </del> -	1	from (E/W)_W						
	<del>├┤╶</del> ┤ <del>├</del> ┤		WELL ACTIV			efore Rework	TYPE OF PERMIT			
<del>   </del> ^					7715	CIOIC IVEWORK	•			
			Brine Dis	•		to. Days all	individual			
	<u> </u>			ed Recovery	Total Depth A	iter Kework	X_Area			
	<u>\$</u>			rbon Storage	7715		Number of Wells_17_			
			X Sol'n Mi	nıng	Date Rework	Commenced				
			Lease Name		01/28/2000		Well Number			
			Kalium Herse	У	Date Rework	Completed	2082			
					02/08/2000					
		V	ELL CASING	RECORD - BE	FORE REWOR	KK				
C	asing	Cemer	nt	Perforation	าร		Acid or Fracture			
Size	Depth	Sacks	Туре	From	То	Т	reatment Record			
30	90	Driven		1						
13 3/8	893	900	A							
9 5/8	5139	2425	А		I		was an all the second s			
7	7715	680	Н	7696	7702					
	WFI	L CASING REC	ORD - AFTER	REWORK (Ind	licate Additions	and Changes (	Only)			
	sing	Cemer		Perforation			Acid or Fracture			
Size	Depth	Sacks	Туре	From	То		Treatment Record			
7		-			7615		teamient iversion			
	7715	680	H	7611	7615					
							A151 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			
	_									
		k operations in o				Wire line logs, I				
		sheets if necess			Log Type	es	Logged intervals			
Lay down pip	e. <u>Run 4 1/2</u>	Casing. Land	donut at 7678'		No.					
•						1/				
				CERTIFICATION	ON					
I certify und	der the penali	ty of law that I h	ave personally			h the informatio	n submitted in this			
-		-					nsible for obtaining			
							e are significant			
		ing false informa								
				SIGNATURE	or into and impi	iooninent. (Nei				
	OFFICIAL II	TLE (Please typ	e or print)	SIGNATURE DATE SIGNED			ブラカカ			
Kyle Barbot						)	4 0500			
Minefield Sup	pervisor									

		UNITED	STATES ENVI	RONMENTAL	PROTECTION	AGENCY					
			WAS	HINGTON, DC	20460						
EPA			WELI	REWORK RE	CORD						
NAME AND	ADDRESS (	OF PERMITTEE		NAME AND A	DDRESS OF (	CONTRACTOR					
IMC Kalium,	Ltd			IMC Kalium, L	td.						
1395 135th A	Avenue			1395 135th A	venue						
Hersey, MI	49639			Hersey, MI 4	9639						
LOCATE WE	ELL AND OU	ITLINE UNIT ON	STATE	COUNTY		PERMIT NUMI	BER 1430				
SECTIO	N PLAT 6	40 ACRES	MI	Osceola		MI-133-3G-A00	M438				
	N		SURFACE LO	RFACE LOCATION DESCRIPTION							
			_SE1/4 of _N	W1/4 of <u>SW</u> 1/	4 of 1/4 of	Section26_Tow	nship <u>17N</u> Range <u>9W</u>				
			Locate well in	two directions	from nearest li	nes of quarter s	ection and drilling unit				
W		E	Surface Local	tion <u>1158</u> ft from	ı (N/S)_ <u>N_</u> Lin	e of quarter sec	tion				
			and 1319_ft. i	from (E/W) <u>W</u>	line of quarter	section					
X			WELL ACTIV	ITY	Total Depth B	efore Rework	TYPE OF PERMIT				
			Enhance	d Recovery	Total Depth A	fter Rework	_X_Area				
-	Ŝ		Hydroca	rbon Storage	7715		Number of Wells_17_				
			X_ Sol'n Mir	ning	Date Rework	Commenced					
			Lease Name		11/29/1999		Well Number				
			Kalium Herse	у	Date Rework	Completed	2082				
					12/21/1999						
, , , , , , , , , , , , , , , , , , ,			ELL CASING	RECORD - BE	FORE REWOR	RK					
С	asing	Сетег	nt	Perforation	s	-	Acid or Fracture				
Size	Depth	Sacks	Туре	From	То	т	reatment Record				
30	90	Driven									
13 3/8	893	900	А								
9 5/8	5139	2425	Α				20 Table 1 Tab				
7	7715	680	Н	7696	7702						
	WEL	L CASING REC	ORD - AFTER	REWORK (Ind	icate Additions	and Changes (	Only)				
Ca	sing	Cemen	ıt	Perforation	S		Acid or Fracture				
Size	Depth	Sacks	Туре	From	То	T	reatment Record				
7	7715	680	н	7611	7615						
/M/1		access of the second									
		Y			A						
De	scribe rewor	k operations in o	detail			Wire line logs, i	ist each type				
		sheets if necess			Log Type		Logged intervals				
Perforate 761	2' - 7624'. L	and at 7643'.	<del></del>								
		<del></del>									
					L-P) MIMALI						
				CERTIFICATIO	N						
I certify und	I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this										
-		-	-				nsible for obtaining				
							e are significant				
		ing false informa									
		TLE (Please type		SIGNATURE			DATE SIGNED				
Kyle Barbot		(5255 t)p	P				2-25-00				
•	Ainefield Supervisor										

					UNITED		RONMENTAL I		AGENCY							
							HINGTON, DC									
EPA						WELL	. REWORK RE	CORD								
NAME AN	ID A	DDR	ESS	OF F	PERMITTEE		NAME AND A	DDRESS OF C	CONTRACTOR							
IMC Kaliu	m Li	d					!MC Kalium L	td.								
1395 135t	'nΑv	enue	<del>)</del>			1	1395 135th A	venue								
Hersey, N	Al 49	639	1				Hersey, MI 4	19639	_							
LOCATE	WEL	L AN	1D O	UTLI	NE UNIT ON	STATE	COUNTY		PERMIT NUM							
SECT	ION	PLA	T - 0	640 /	ACRES	мі	Osceola MI-133-3G-A002 M438									
		N				SURFACE LO	CATION DES	CRIPTION								
						_SE1/4 of _N	W1/4 of _SW1/	4 of 1/4 of	Section26_ Tow	vnship <u>17N</u> Range <u>9W</u> _						
										ection and drilling unit						
	1	+		+					,	•						
w			$\vdash$		Ε	Surface Local	tion1158ft_from	(N/S) N Lin	e of quarter sec	ation						
l "├─	┝	┿	╁	+	$H^-$	and 1319 ft. from (E/W) W line of quarter section										
<del> </del>	X	+	╁	+	<del></del>		WELL ACTIVITY Total Depth Before Rework TYPE OF PERMIT									
	<del>                                      </del>	+	┼					7715	CIOIC NEWOIK	individual						
-	$\vdash$	+	╌┼		<b>-</b>	Brine Dis	•		ttor Dowark							
		1_					ed Recovery	Total Depth A	ILEI MEWORK	X Area						
_	_	S					rbon Storage	7715		Number of Wells_17_						
X Sol'n Mining								Date Rework	Commenced							
						Lease Name		10/25/1999		Well Number						
Kaliur						Kalium Herse	У	Date Rework	Completed	2082						
10/27/1999																
					W	ELL CASING	RECORD - BE	FORE REWOR	K							
	Cas	ing		i	Cemen	ıt	Perforation	ns		Acid or Fracture						
Size					Sacks	Туре	From	То	Т	reatment Record						
30		90		i	Driven											
13 3/8		89	3		900	A	314		****	**************************************						
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	Casi	nα		1	Cemen		Perforation			Acid or Fracture						
Size	1		pth	╁	Sacks	Туре	From	To		reatment Record						
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					perations in o				Wire line logs,							
				II she	ets if necess	ary		Log Type	es	Logged intervals						
Perforate `	7611	76	315'.				····Audinarum									
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							CERTIFICATION	NC								
certify	I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this															
docume	nt an	d all	attac	chme	ents and that,	based on my i	inquiry of those	individuals im	mediately respo	nsible for obtaining						
										re are significant						
										f. CFR 144.32).						
					(Please type		SIGNATURE		•	DATE SIGNED						
Kyle Barbo						. ,	1	1		/ / / /						
*	(yle Barbot /// 23/99) Minefield Supervisor															

		UNITED	STATES ENV	IRONMENTAL	PROTECTION	AGENCY					
			WAS	SHINGTON, DO	20460						
EPA				L REWORK RE		_					
NAME AND	ADDRESS (	OF PERMITTEE		NAME AND A	DDRESS OF	CONTRACTOR					
IMC Kalium	Ltd			IMC Kalium L	_td						
1395 135th /	Avenue			1395 135th A	venue						
Hersey, MI				Hersey, MI 4	49639						
LOCATE WE	ELL AND OU	TLINE UNIT ON	STATE	COUNTY		PERMIT NUMI	BER				
SECTIO	N PLAT 6	40 ACRES	МІ	Osceola		MI-133-3G-A00	<u> 1</u> 1438 <u>1</u>				
	N		SURFACE LO	SURFACE LOCATION DESCRIPTION							
			_SE1/4 of _N	W1/4 of <u>SW</u> 1/	/4 of 1/4 of	Section26_Tow	nship <u>17N</u> Range <u>9W</u>				
			Locate well in	two directions	from nearest li	nes of quarter s	ection and drilling unit				
			1								
w 📗		E	Surface Loca	Surface Location 1118ft from (N/S) N Line of quarter section							
			and 1319 ft.	and 1319 ft. from (E/W) W line of quarter section							
X			WELL ACTIV	100000-00-00-00-00-00-00-00-00-00-00-00-		Before Rework	TYPE OF PERMIT				
			Brine Dis	sposal	7800		Individual				
			1	ed Recovery	Total Depth A	fter Rework	X Area				
<u></u>	S		1	rbon Storage	7800		Number of Wells 17				
			X Sol'n Mi	ning	Date Rework	Commenced					
			Lease Name	Ū	2/1/99		Weil Number				
			  Kalium Herse	v	Date Rework	Completed	2081				
				,	2/4/99						
		W	/ELL CASING	RECORD - BE	FORE REWOR	RK					
C	asing	Cemer	nt	Perforation	าร	,	Acid or Fracture				
Size	Depth	Sacks	Туре	From	То	Т	reatment Record				
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7	7718	730	Н								
	WEL	L CASING REC	ORD - AFTER	REWORK (Ind	icate Additions	and Changes C	Dnly)				
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Size	Depth	Sacks	Туре	From	То		reatment Record				
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9 5/8	5134	1950	Α								
7	7718	730	Н	7706	7704	4sh/ft					
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De	scribe rewor	k operations in o	<u> </u>	100.		Wire line logs, l	ist each type				
		sheets if necess			Log Type		Logged intervals				
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				7.							
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		ve that the inform					-				
		ng false informa TLE (Please type		SIGNATURE	n me and impr	isonineni. (Ref.	DATE SIGNED				
name and c Paul McMiller		ı ∟⊏ (⊬iease type	e or print)	SIGNATURE	1 . 1	3					
Vinefield Sup				//lest	n' M		02/22/98				
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		UNITED	STATES ENV	IRONMENTAL	PROTECTION	AGENCY	
			WAS	HINGTON, DC	20460		
EPA			WEL	L REWORK RE	CORD		RECEIVE
NAME AND	ADDRESS (	OF PERMITTEE		NAME AND A	DDRESS OF C	CONTRACTOR	
IMC Kalium	Ltd			IMC Kalium, L	td		JAN 1 4 1999
1395 135th	Avenue			1395 135th A	venue		2, 2,00
Hersey, MI	49639			Hersey, MI 4	19639		GEOLOGICAL SURVEY D BER ENVIRONMENTAL QUALI
LOCATE WE	ELL AND QU	ITLINE UNIT ON	STATE	COUNTY		BER ENVIRONMENTAL QUALI	
SECTIO	N PLAT 6	40 ACRES	MJ	Osceola		MI-133-3G-A00	02 M438
	N		SURFACE L	OCATION DES	CRIPTION		
			<u>SE</u> 1/4 of <u>N</u>	<u>IW</u> 1/4 of <u>SW</u> 1/	4 of 1/4 of	Section26_Tow	nship <u>17N</u> Range <u>9W</u>
			Locate well in	two directions	from nearest li	ines of quarter s	ection and drilling unit
			]				
W L		E	Surface Loca	tion <u>1158</u> ft from	n (N/S) <u>N</u> Lìn	e of quarter sec	tion
	<u> </u>		and <u>1319</u> ft.	from (E/W)_W_	line of quarter	section	
X			WELL ACTIV	'ITY	Total Depth B	Before Rework	TYPE OF PERMIT
			Brine Di	sposai	7715		Individual
			Enhance	ed Recovery	Total Depth A	After Rework	X_Area
	S		Hydroca	rbon Storage	7715		Number of Wells 17
			X Sol'n Mi	ning	Date Rework	Commenced	
			Lease Name		12/15/98		Well Number
			Kalium Herse	y .	Date Rework	2082	
·		1	<u> </u>		12/15/98		
		<u>_</u>	VELL CASING	RECORD - BE	FORE REWOR	RK	A. A. SATING THE TITLE THE
С	asing	Cemer	1	Perforation		,	Acid or Fracture
Size	Depth	Sacks	Туре	From	То	Ţ	reatment Record
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	sing	Cemer	-	Perforation			Acid or Fracture
Size	Depth	Sacks	Туре	From	То		reatment Record
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13 3/8	893	900	A				
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7	7715	680	Н				
		la 1				140-00	1-4 t- 4
		k operations in o				Wire line logs, I	
		sheets if necess	sary		Log Type	95	Logged intervals
Perforate 770	00' - 7702'		) II and the distance of the second				
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			_				nsible for obtaining
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					or tine and impr	risonment. (Ref	
		TLE (Please typ	e or print)	SIGNATURE	1		DATE SIGNED
Paul McMiller				Vrus	Mille	ger .	01/09/99
Minefield Sup	INISOL			100			

		UNITED	STATES ENVI	RONMENTAL	PROTECTION	AGENCY						
			WAS	HINGTON, DC	20460							
EPA			WEL	L REWORK RE	CORD							
NAME AND	ADDRESS C	F PERMITTEE		NAME AND A	DDRESS OF C	ONTRACTOR						
IMC Kalium,	Ltd			IMC Kalium, L	td.							
1395 135th /	Avenue			1395 135th A	venue							
Hersey, MI	49639			Hersey, MI 4	9639							
LOCATE WI	ELL AND OU	TLINE UNIT ON	STATE	COUNTY		PERMIT NUME	BER					
SECTIO	N PLAT 64	40 ACRES	MI	Osceola		MI-133-3G-A00	)2					
	N		SURFACE LO	DCATION DES	CRIPTION							
			SE1/4 of N	W1/4 of <u>SW</u> 1/	4 of 1/4 of	Section26_Tow	nship <u>17N</u> Range <u>9W</u>					
			Locate well in	two directions	from nearest li	nes of quarter s	ection and drilling unit					
			İ									
w T		Ε	Surface Loca	tion <u>1158</u> ft from	(N/S) <u>N</u> _Lln	e of quarter sec	tion					
		П	and 1319 ft.	from (E/W)_W	line of quarter	section						
Х			WELL ACTIV	VELL ACTIVITY   Total Depth Before Rework   TYPE OF PERMIT								
			Brine Di	sposal	7715		Individual					
		П	_	ed Recovery	Total Depth A	fter Rework	X Area					
<u> </u>	S		1	rbon Storage	7715		Number of Wells 18					
			X Sol'n Mi	-	Date Rework	Commenced	<del></del>					
			Lease Name	·	9/8/98		Well Number					
			Kallum Herse	v	Date Rework	Completed	2082					
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		1	NELL CASING	RECORD - BE	FORE REWOR	₹K						
C	asing	Ceme	The second secon	Perforation		A STATE OF THE PARTY OF THE PAR	Acid or Fracture					
Size	Depth	Sacks	Туре	From	To		reatment Record					
30	90	Driven	1		1							
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9 5/8	5139	2425										
7	7715	680	<del>1                                    </del>	1	1							
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	WEL	L CASING REC	CORD - AFTER	REWORK (Inc	icate Additions	and Changes (	Only)					
	asing	Ceme		Perforation			Acid or Fracture					
Size	Depth	Sacks	Туре	From	То	1	reatment Record					
30	90	· Driven	1,700	110111	1		100010111111111111111111111111111111111					
30 13 3/8	893	900	<del> </del> A									
9 5/8	5139	2425	<del>  ^</del>	<del> </del>								
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7	7713	1 000	<del>  ''</del>	1								
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	ecribe revo	de operations is	detail	•	1	Wire line lone	list each tune					
D		rk operations in		•	Log Type	Wire line logs,						
D U	se additional	sheets if neces	sary		Log Typ	<u> </u>	Logged intervals					
D U	se additional	•	sary		Log Typ	<u> </u>						
D U	se additional	sheets if neces	sary		Log Typ	<u> </u>						
D U	se additional	sheets if neces	sary		Log Typ	<u> </u>						
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SEP 1 7 1998

		UNITED	STATES ENVI	RONMENTAL I	PROTECTION	AGENCY						
			WAS	HINGTON, DC	20460							
EPA _			WELL	REWORK RE	CORD							
NAME AND	ADDRESS O	F PERMITTEE		NAME AND A	DDRESS OF C	ONTRACTOR						
IMC Kalium,	Ltd			IMC Kalium, L	td.							
1395 135th A	venue			1395 135th A	venue							
Hersey, MI	49639			Hersey, Mt 4	19639		į					
		TLINE UNIT ON	STATE	COUNTY		PERMIT NUME	3FR					
	N PLAT 64		MI	Osceola		MI-133-3G-A00	331-7					
3231131	N			SURFACE LOCATION DESCRIPTION								
				W1/4 of SW1/		Section26 Tou	nship17N Range9W					
<del> -    -</del>		<del>   - </del>					ection and drilling unit					
	<del>┞╶╏╶╏</del> ╼ <del>┞</del> ┈╏		Locate well it	two directions	nom nearest n	nes of quarter s	ection and drining trift					
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l**		<del></del>	1			e of quarter sec	aion					
				from (E/W) W			Impropries					
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				d Recovery	Total Depth A		X Area					
	S		4	rbon Storage	7715		Number of Wells 18					
			X Sol'n Mi	ning	Date Rework							
			Lease Name		8/6/98		Well Number					
			Kalium Herse	у	Date Rework	Completed	2082					
					8/14/98							
	_	V	VELL CASING	RECORD - BE	FORE REWOR	RK						
C	asing	Cemer	)t	Perforation	is		Acid or Fracture					
Size	Depth	Sacks	Туре	From	To	T	reatment Record					
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Ca	sing	Cemer			WORK (Indicate Additions and Changes Only)  Perforations  Acid or Fracture							
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İ				CERTIFICATION	ON							
	I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this											
document a	and all attach	ments and that,	based on my	inquiry of those	individuals im	mediately respo	nsible for obtaining					
the inform	ation, I belie	ve that the infor	mation is true,	accurate, and	complete. I am	aware that the	re are significant					
penaltie	s for submitt	ing false informa	ation, including	the possibility	of fine and imp	risonment. (Re	f. CFR 144.32).					
		TLE (Please typ		SIGNATURE			DATE SIGNED					
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Minefield Sur	pervisor			fan	"IN JU	<u></u>	00/11/18					

JUL à 1988

		UNITED	STATES ENVI	RONMENTAL F	PROTECTION	AGENCY					
			WASI	HINGTON DC	20460						
EPA		_	WELL	REWORK RE	CORD						
NAME AND A	ADDRESS O	F PERMITTEE		NAME AND A	ODRESS OF C	ONTRACTOR					
IMC Kalium	Ltd			IMC Kalium, Li	td						
1395 135th A	venue			1395 135th A	/enue						
Hersey, MI	49639			Hersey, MI 4	9639						
LOCATE WE	LL AND OU	TLINE UNIT ON	STATE	COUNTY		PERMIT NUMI	BER				
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							nship <u>17N</u> Range <u>9W</u>				
			Locate well in	two directions	from nearest li	nes of quarter s	ection and drilling unit				
W		E	Surface Locat	tion <u>1158</u> ft from	ı (N/S) <u>N</u> Lin	e of quarter sec	tion				
			and 1319_ft. from (E/W)_W_line of quarter section								
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			Brine Dis	sposal	7715		Individual				
			Enhance	d Recovery	Total Depth A	fter Rework	X_Area				
	S		Hydroca	rbon Storage	7715		Number of Wells 18				
			X Sol n Mii	ning	Date Rework	Commenced					
			Lease Name		4/3/98		Well Number				
			Kalium Herse	У	Date Rework	Completed	2082				
					4/21/98						
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		rk operations in				Wire line logs,	T				
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		TLE (Please typ	e or print)	SIGNATURE			DATE SIGNED				
Paul McMille				00 8	- Me M	uiA.	06/02/98				
Minefield Su	pervisor			1 Tues	min	w	1 2 2 1 - 0 1 10				

#### DEG

MICHIGAN DEPART IT OF ENVIRONMENTAL QUALITY - GEOLOGIC / URVEY DIVISION

CERTIFICATION	OF	CASING	G AND	SEALING	OF SUF	RFACE	<b>IOLE</b>
MÀ	<b>7</b> 0	A ROTA					

	MAIN	ک	V	1900
by authority of Part 615 Supe	rvisor (	of V	Vell	s or
lineral Wells, of Act 451 PA 1	994, a	s a	mer	nded
mission and les falaification of	this int	Fa		~=

Required Part 625 M Non-submission and/or falsification of this information may result in fines and/or imprisonment

Permit number

Well name MALIOM HERSEY 2082

Township

HERSEY

County OSCEOCA

Surface location
SE 1/4 of MW 1/4 of SW 1/4 Section 26 T 171 R 9W
Name and address of drilling contractor
MCLACHCW DRILLING COMPANY

Name and address of permittee

IMC KALIUM CHEMICALS, LTD 1395 135 th AVE HERSEY, MI, 49639

P.O BOX 548

EVART, MI, 49631

SURFACE HOLE

		CON AC	L 110LL		
Hole diameter	Depth to	Base of specified	Total depth of	Formation at	Date drilling
: (Note reductions	bedrock	aquifer (see permit)	surface hole	surface casing seat	çompleted
171/2"	769	769	891	MICH GROUP	9/20/97

Narrative of unusual drilling circumstances or problems encountered

Name and address of geologist/mud logger

ALLEN BRIGHT P.O. BOX 320

LAKE ANN, MI. 49650

#### SURFACE CASING

Casing	Casing	Cement type	Amount of	Volum	e (bbls)	Plug down
O.D. (in)	depth	and additives	cement (sacks)	Pumped	Returned to surface	date & time
133/8	891	LITE	575	247	0	0200
		A	200	134	0	9/21/97

Narrative of problems encountered running or cementing casing. Note any cement fallback, grouting, or lost circulation zones

GROUTED WITH 125 SACKS (263BLS) CLASS"A" W/3% Cacle

33BLS RETURNS

I AM RESPONSIBLE FOR THIS REPORT. THE INFORMATION IS COMPLETE AND CORRECT.

Signature of permittee or company officer

Desce

ARCH 15, 1998

Submit the original and one copy, typewritten or legible printed, within 30 days after drilling is completed to:

GEOLOGICAL SURVEY DIVISION

MICHIGAN DEPT OF ENVIRONMENTAL QUALITY

PO BOX 30256

LANSING MI 48909-7756

EQP 7200-12 (Rev 10/96)

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SIGNATURE

I AM RESPONSIBLE FOR THIS REPORT. THE INFORMATION IS COMPLETE AND CORRECT.

NAME AND TITLE (PRINT)

March 15, 1998 Colin Howard, Production Geologist

DATE

#### FORMATION RECORD

KH2082

(ATTACH ADDITIONAL SHEETS IF NECESSARY)

ELEVATION USED	GEOLOGIST NAME:		TOPS TAKEN FROM						
1149.5		Colin Howard	☐ DRILLERS LOG ☐ SAMPLE LOG ☐ ELECTRIC LOG						
FROM	то	FORMATION (TYPE, COLOR, HARDNESS)	FROM TO (TYPE,COLOR, HARDNESS)						
		Y DRILLED. <i>ADD</i> TRUE VERTICAL RE APPROPRIATE							
0	76 <b>9</b>	Drift							
769	1374	Michigan Group							
1374	1467	Triple Gyp							
1467	1578	Brown Lime							
1578	1684	Stray Sand							
1684	1848	Marshall Sand							
1848	2600	Coldwater Shale							
2600	2697	Sunbury Shale							
2697	3117	Ellsworth Shale							
3117	3257	Antrim Shale							
3257	3303	Traverse Formation	IF WELL WAS CORED, ATTACH CORE DESCRIPTION						
3303	3801	Traverse Lime	DRILL STEM TEST DATA						
3801	3877	Bell Shale							
3877	3944	Dundee							
3944	3973	Reed City Anhydrite							
3973	4124	Reed City Dolomite							
4124	4191	Detroit River Anhydrite							
4191	4590	Detroit River Salt							
4590	4716	Detroit River Sour							
4716	5006	Massive Anhydrite							
5006	5128	Black Lime							
5128	5219	Sylvania							
5219	5380	Bois Blanc							
5380	5701	Bass Island							
5701	5709	Salina							
5709	5733	F-Unit	LIST ATTACHMENTS:						
5733	6038	F-Salt	DDL - Oncourse Directional						
6038	6421	E-Unit	SCHL Sonic G/R						
6421	6467	D-Salt	SCHL Neutron						
6467	6687	C-Shale	M.W Cement Bond						
6687	6920	B-Salt							
6920	7060	A-2 Carbonate							
7060	7416	A-2 Evaporite	GEOLOGICAL SURVEY USE ONLY						
7416	7480	A-1 Carbonate	REVIEWED BY:						
7480	7750	A-l Evaporiate (T.D.)	DAYE OF REVIEW.						
THES	E ARE TV	D- Ray V 2/18/2003	<u> </u>						

STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES GEOLOGICAL SURVEY DIVISION BOX 30028

LANSING MICHIGAN 48909

#### PERMIT TO

OPERATE ⚠ DRILL □ DEEPEN □ REWORK GRANTED UNDER PROVISIONS OF

(M.C.L. 319.1 to 319.27) (MCL. 319.211 to 319.236)

Violation of and/or non-compliance with the provisions of the acts and conditions of permit may result in penalties. This permit includes as requirements all the operations and methods proposed by the applicant, unless rejected or altered by the DNR, and along with the attached stipulations are incorporated in its entirety by reference.

PERMIT	ISSUED	TYPE OF WELL
M438	9/9/97	Brine Production
CANCEL AND TRANSFER	ISSUED	FORMATION
		A-1 Evaporite
DEEPENING PERMIT		DEPTH
		8,000' MD, 7,850' TVD
PERMIT EXPIRES		KIND OF TOOLS
3/9/98		Rotary
ISSUED TO		

IMC Kalium, Ltd. 1395 135th Avenue Hersey, MI 49639

WELL NAME

Kalium Hersey

2082

LOCATION AND FOOTAGES:

SEL NWA SWA, Sec. 25, T17N, R9W, Hersey Twp., Osceola

1158 ft. from North and 1319 ft. from West line of quarter section.

NEW SWA SWA, Sec. 26, T17N, R9W, Hersey Twp., Osceola Co.

859 ft. from South and 1142 ft. from West line of quarter section.

					THERMAN	
		CASING	CASING AND SEALING REQUIRE	MENTS	CEME	MT
O.O. SIZE	WT./FT.	GRADE	CONDITION	DEPTH	5ACKS	W.O.C. (HRS.)
13 3/5"	48#	J-55	New/Used	900'	700	16
9 5/8"	40#	K-55	New/Used	50 <b>0</b> 0'	1600	16
7 ''	23#	L-80	New	. 7950°	200	24

- 1. No earthen reserve pit is to be dug. Steel tanks are to be used to contain drilling fluids and cuttings.
- Solids and cuttings shall be hauled to the Northern Oaks landfill.
- Wellhead shall be rated at 5000 psi.
- 9 5/8" intermediate casing shall be set a minimum 100" into the Amherstburg formation.

OFFICE TO BE NOTIFIED BEFORE DRILLING/DEEPENING STARTS

CADILLAC (616) 775-3960

WILLIAM LEE (517) 334-6974

PERMIT COORDINATOR

PAGE 1 of PAGE(S)

FOR THE SUPERVISOR OF WELLS/MINERAL WELLS

#### THIS PERMIT IS SUBJECT TO THESE GENERAL CONDITIONS

- 1. Drilling operations shall not start until the drill site preparation requirements are completed
- 2 Initiation of any work on the permitted project confirms the permittee's acceptance and agreement to comply with all the terms and conditions of this permit and the rules, orders and requirements of the Supervisor of Wells/Mineral Wells.
- 3 The permittee is required to give notice to public utilities in accordance with Act 53, PA 1974 (M.C.L. 460.701 to 460.718).
- 4 Any changes from what is stated in the permit application and permit shall be approved by the Supervisor of Wells/Mineral Wells
- 5 This permit is valid only for the permittee of issue and any change of ownership shall be accompanied by a request to the Supervisor of Wells/Mineral Wells to transfer the permit from the current owner to the new owner.
- 6 NOTICE AND REQUIREMENTS FOR SOURCES OF WATER AND WATER WELLS USED IN CONJUNCTION WITH OIL AND GAS OR MINERAL WELL DRILLING. AND OPERATIONS" December 1 1984 is made part of and a condition of this permit
- 7 During well completion and testing procedures all fluids shall be contained in tanks and transported to off site disposal racilities
- 3 The Michigan Air Pollution Control Commission rules require that a person shall not install nor after sour gas or oil well production equipment and flare unless a permit to install has been approved by the Commission. An operator is allowed to drill and test a sour well prior to obtaining the necessary permit to install from the Commission, but is not allowed full production of such wells before issuance of the necessary air use permits.
- 3 This permit does not convey property rights in either real estate or material or does it authorize eny injury to prelate property or invasion of private or public rights or does it waive the necessity of seeking foderal and local permits or complying with other state statutes.
- 10 It a Hydrogen Sulphide contingency plan is required a copy of PART II of the plan shall be posted in the primary briefing area.
- 11 All trash and garbage shall be removed from the drill site at the completion of drilling.
- 12 Blowout preventers, accumulators and pumps shall be certified as operable under the product manufacturer's minimum operational specifications. This certification shall include proper operation of the closing unit valving pressure gauges, and manufacturer's recommended accumulatory fluids. Certification may be obtained through those companies presently used to test the blowout preventers stack and casing. Certification shall be required annually and shall be posted on the rig floor.
- 13 In addition to the primary closing system including an accumulator system, the blowout preventers shall have a secondary system. A combination of any two of the following secondary closing systems will be acceptable: Electric-operated pump; Air-operated pump, Hand-operated pump or nitrogen. Extensions with hand wheels are not mandatory.
- 14 Blowout preventer rams shall be of proper size for the drill pipe being used or production casing being run in the well. Variable type rams of the proper size range will be acceptable
- 15. The gas buster and flare system shall be in place and operable prior to drilling into a reservoir known or believed to contain Hydrogen Sulphide in excess of 500 ppm with the intention to complete in and/or test that reservoir.
- 16. A trip tank, or any accurate fluid monitoring system, as well as a gas buster and flare system where justified, shall be in place when penetrating the A2 Carbonate formation. Changes may be granted by the Department of Natural Resources District Geologist.



EQ 7239 (Rev 2/96)

# TRANSMITTAL AND FIELD REVIEW □ Part 615 Supervisor of Wells FOR PROPOSED WELL SITE □ Part 625 Mineral Wells, Act 4 □ CADILLAC □ ST. 6 € 0 0 615 T G PG

☐Part 615 Supervisor of Wells, Act 451 PA 1994, as amended ☐Part 625 Mineral Wells, Act 451 PA 1994, as amended

		<u> </u>	•	_			
1a Application number 1b MW 970011	Owner number	1c Revision ☐Yes ⊠No	1d. Coor	EFERILLER	-	1e Date sent 6 -3 -97	
2 Applicant				The state of the s		1f. District	
IMC KALIUM, LTD.						CADILLAC	
3a Well name and number					3b Other p	ermit numbers	
KALIUM HERSEY #208	2						
4a Surface location					Township	County	
SE 1/4 NW 1/4	SW 1/4	Sec 26	T 17N	R 9W	HERSEY	OSCEOL	_A
4b Footages						BEOF	
1158 ft from North lin	e of 1/4 sec			1319 ft from	West line of 1	/4 sec	IVED
5a. Surface Ownership	<b>(</b> Private	te Federal		5b Mineral ownershi	p <b>X</b> Private	State // Feg	eral
6 Information and requests: ( MINERAL EXTRAC		areas etc)		5c Well site area loc  Other:  Νοτ Ζονεύ		□ Residential Sur	1997 ntial zoning: /EY CADILLAC
		FIELD REVIE	W AND R	ECOMMENDATIONS			
7 Field review by: name and	date	8a Land use:		<u>C</u>	8b Covert	ype/density:	
MOSS		8a Land use:	TININ	N	BRA	WL	
9 Topography - (slope % gra	aće)	10a. Area involv	ved: 🛌		10b Area i	nvolved	
FLAT		Prill pad:	IN	PAD		KAIRTILL	
		Drill pad:	V - V	Acres	Access roa	d RX 15 TIMACTE	s
11 Soil type and drainage fie	eld tiles etc	STND	F 5/	ANTI F			
12 Are soil erosion and sedimentation control measu	(9 Yes		-				
adequate?							
13 Type direction & distance waterways, wet lands flood p rivers within 1/4 mile		NOWE					
14 Nearby scenic historical areas, environmentally sens and threatened and endange 1/4 mile	itive, critical dunes	N.A.					
15 Buildings public roads, p lines, water wells within 300 t well site.		MINEP	46	WELL CL	-USTEX	2	
16 Is casing and sealing ade	equate?	_					
Conductor [2] Yes	□No	Expected depth	to base of	fresh water ,	formation		
Surface PYes	□ No						j
Intermediate  Yes	rono <	- SHOULD	BE	SET IN A	MHELS	TAURG FM	OR LOWA
Production Yes	□ No <del>&lt;</del>			- · · · · · · · · · · · · · · · · · · ·	(((())))		
17 Is Intermediate Casing E		TSEE M	KMO				
recommended? Yes	xception PNo						
18 B O.P. Program adequate	<del></del>			000	A	- 22	
If certified tests required, give		WELLH	E10	SHOULD B	E 5000	F	
19 H <sub>2</sub> S							TO THE REAL PROPERTY.
Sweet'						GEOLOGICAL S	OKAR.
Sour' Class					4	CEOLOGICAL ,	
☐ Plan required	1				•	May 20	
Plan complete and accurate	e? (11) Yes 🗌 N	,				AUG 2 6	() ·
20 S I 2-87 apply?	Yes II N						tion
In-ground Pit Exception?	Yes N					• BO	nding Ullic
H <sub>2</sub> S Prod Facilities Exception		I				Permits & Bo	
Require electric pump jack?	Yes N					• -	
The same and a same	ф ·-						

Complete both sides

21 Source of freshwater:	
Surface water Municipal source	
Petable well Other	
Exclusive use well	
22 Drilling pit requirements	
a Use mud tanks only?	
☐Yes ☐No	
b Specific placement required?	
Yes No	
c. Remote pit required?	
d Salt cuttings to be: (give details)	
Dissolved & removed	
Removed for disposal	
None	
e District geologist to be notified prior to:	
	11/4
Excavation Yes No	$ \mathcal{N}_{f} $
Liner installation Yes Nc	<b>'</b>
Encapsulation Yes No	
23 DEQ and/or DNR comments:	
	4
24. Items continued and/or not covered above	
(attach additional sheets if needed):	
25. Permits needed (describe if applicable):	
Land use / well site 🔲 Wetlands	
Stream crossing Other	
Soil erosion/sedimentation	
26 Revision included	
(describe if applicable)	
(,	
	1 ANNAL ALMAN COLOR DE PROPERTIES DE L'ANNA COLOR DE L'ANNA CO
27. Representative of permittee contacted regar	ding additional requirements?
Name	Date Phone
28. Area geologist: recommend a permit:	Yes No (provide reasons) Needs corrections or additional information
	0/21/03
miliais 1. Marso	0/ 2-1 / 7 /
Signature	Title Date
29 District Geologist: Recommend a permit:	Yes No (provide reasons) Needs corrections or additional information Memo attached
n	
//	
$\sim$ 11/	
(,) <b>/</b> // ,	
Kinh XI a	- What God R/21/50
Signatura	Title Date
Signature / /	1 ILLE Date

DRILLING PERMIT APPLICATION FLOW SHEET Application Number: + 5 days mw970011 Date to send to field: +45 days 40 Alium Date to review: Well Name & No + 10 days Date to respond: + 10 bus, days Vendor No: Org Chart received Date to issue permit: Reviewer: RT INITIAL REVIEW M Check#, Bank, City #00333393. Royal BK. N. Canada **⊠** Fee ☐ Revision ☐ Deepening C&T, original permit enclosed **EQP** 7200-1 Supplemental plat BOP Diagram F≱ EQP 7200-2 Complete Complete Application ⊠ EIA Notice to landowner Directional Plan MAdd into Hed plan ₩Blanket Bond# 25 K 🔀 Bond ☐ Single -- Natural □ No match found Program Feature \_\_\_\_\_ Phone: \_\_ Features Personnel contacted ☑ Cad ☐ Gay ☐ B C ☐ H L. ☐ Shi ☐ Jac ☐ Liv ☐ Pl. Area geologist: Distribution District Geologist: Cad BC Shi Pl Confidential, copy provided to PGP Date 6-397 ΠFĭ. Returned to applicant, date REVIEW FOR COMPLETE AND ACCURATE INFORMATION Reviewer: Luft L ☐7200-1 Deficiencies or conflicts 7200-2 Deficiencies or conflicts Location RIZOning NONE \_ Residential zoning initial date: \_\_ Posted on map Certification of elevations ☐ Purpose of well in EIA? Well type: ☐ Oil/Gas ☐ BDW ☐ Gas Storage ☐ Secy Rec ☐ Spacing addressed in EIA? ☐ Field spacing order \_\_\_\_\_\_ ☐ Drilling Unit (A) 14-9-94 (A) 3-3-95 (S O 1-73 (S O 1-86 ☐ General Rules Approved USP \_\_\_\_\_ USP Density \_\_\_\_ 1320' conflicts MINERAL Spacing conflicts \_\_\_ WELL. ☐ Administrative approval ☐ Pooling documents ☐ Voluntary pooling 厨 Private surface ☐ Private minerals □ Complete drilling unit SURFALE のいから **◯** Ownership State surface ☐ State minerals ☐ Open acreage ☐ Federal surface ☐ Federal minerals State lease deficiencies Copy to H₂S Unit ☐ Sweet ∏<sub>.</sub>H<sub>2</sub>S ⊠Sour, Class \_\_\_\_\_ Contingency plan enclosed Rotary ☐ Combination Cable ☑Int csg S.O. 2-73 ☐ 30% exception ⊠∕Casing & ☐ Short int exception ☐ Through Gas Storage S O 1-87 ☐ Notice to Storage operator Sealing D(\$I 1-94 KBOP Adequate depth to cost csq, upgrade wellhand rut Deficiencies Added ElA Part I A-B Deficiencies \_ Field review received Recommend issuance \(\mathbb{T}\)Yes \(\mathbb{N}\) No EIA Review Field EIA deficiencies \_ ☐ Corrections or additional info from above □ Notice to applicant Date Public hearing pending Other ☐ Permits hold
☐ 

APPLICATION FOR PERMIT TO:    MICHIGAN DEPARTMENT OF ENVIRONMENTAL COLOR OF CALSURVEY DIVISION   1a. Part 615 Supervisor of Wells   1b. Part 625 Mineral Wells   1c. Fee er	
	closed?
DRILL DEEPEN  Oil and Gas MAY 2 1 1 7 Disposal  No, re	vision of
	cation
By authority of Part 615 or Part 625 of Act 451 PA 1994, as amended. Non-submission and/or falsification of this information may result in fines and/or imprisonment.	
2. List all previous permit numbers  3 Fed Employer ID No. or Soc Security No  38-3545577  Locate well and outline drilling unit on security No	ction plat
4. Conformance bond 5 Attached 6. Bond number 7 Bond amount	
Blanket Single well Son file Bank of Montreal \$25,000  8. Applicant (name of permittee as bonded)	
IMC Kalium, Ltd.	
9. Address Phone SEC. 26	
1395 135th Avenue 616-832-3755 w : : : : : : : : : : : : : : : : : :	
Hersey, MI 49639	
10 Lease or well name (be as brief as possible) Well number X - SHL	
Kalium Hersey 2082 X - BHL	
11. Surface owner	
IMC Kalium, Ltd. S  12 Surface location Township County	
SE 1/4 of NW 1/4 of SW 1/4 of Sec 26 T 17N R 9W Hersey Osceola	
13 If directional, bottom hole location Township County	
NE 1/4 of SW 1/4 of SW 1/4 of Sec 26 T 17N R 9W Hersey Osceola	
14 The surface location for this well is	
a 1438feet from nearest (N/S) Southsection line AND 1319feet from nearest (E/W) westsection line	
b 1158 feet from nearest (N/S) north quarter section line AND 1319 feet from nearest (E/W) west quarter sec	ion line
15 Is this a directional well? No Yes If yes complete lines 15 a & b the bottom hole location for this well is	
b. 839 feet from nearest (N/S) South quarter section line AND 1142 feet from nearest (E/W) West quarter sec	ion line
The bottom hole location (whether straight or directional) of this well is  feet from nearest (N/S) drilling unit line ANDfeet from nearest (E/W)drilling unit	line
17. Kind of tools 18. Is sour oil or gas expected? 19 Base of towest known fresh water aquifer	
☐ Rotary ☐ Cable ☐ Combination ☐ No ☐ Yes ☐ H₂S Cont. plan enclosed Formation ☐ Depth 800	)'
20. Intended total depth 21 Formation at total depth 22 Producing/injection formation(s) 23 Objective pool field or p	roject
MD 8,000' TVD 7,850' A-1 Evaporite A-1 Evaporite Hersey Potash	
24. PROPOSED DRILLING, CASING AND CEMENTING AND SEALING PROGRAM  HOLE CASING CASING M CEMENT M	UD
Depth (MD) Geol. Formation Bit Dia. O.D. Size Wt/Ft Grade Condition Depth (MD) Sacks T.O.C. W.O.C Wt.	Vis.
900' Drift 17 1/2" 13 3/8" 48# J55, New/Used 900' 700 Surf. 16 8.4	27
Since 11 1/2 10 0/0 100 000, Holwested 000 100 001.	
4,900' Mass. Anh. 12 1/4" 9 5/8" 40#, K-55, New/Used 4,900' 1,600 Surf. 16 10,2	27
	0.1
8,000' A-1 Evap. 8 1/2" 7" 23#, L-80, New 7,950' 500 5,000' 24 10.2	34
25 Send correspondence and permit to Address Phone	
IMC Kalium, Ltd. 1395 135th Avenue Hersey, MI 49639 616-832-375	5
CERTIFICATION "I state that I am authorized by said applicant. This Enclose permit fee of \$100 for a Part 615 oil, gas, or brine	
application was prepared under my supervision and direction. The facts stated herein are true accurate and complete to the best of my knowledge."  disposal well or \$50 for a Part 625 disposal, brine production or storage well. Make checks payable to State of Michigan.	
26 Application prepared by (print or type) Phone DEQ Cashier use only.	
Colin Howard 616-832-3755	
27. Signature Date (27)	
15/000 5/20/97	
Geological Survey Division Use Only.	
<del></del>	

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALIFICATION  APPLICATION FOR PERMIT TO:  DEEPEN  MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALIFICATION  12. Part 615 Supervisor of Wells  Disposal  Disposal			
Oil and Gas MAY () [ Disposal		, Fee en	closed7
	-  ₩	Yes	ئے جماعت
Brine Disposal	_	_l №o, rev applik	rision of ation
THE CONTRACT OF THE PROPERTY O			
Locate well and outline	drilling 4	unit on sec	tion plat
2. List all previous permit numbers 38-3545577	N T		
4. Conformance bond 5. Attached 6. Bond number P43027C 7. Sond amount  Steps with Steps with 5. Attached Bank of Montreal 00008 \$25,000		1	
M Baltiket 1 3 mg e went 1 M Off file			
Applicant (name of permittee as bonded)  IMC Kallium, Ltd.			
9. Address Phone SEC	, 26	:	
1395 135th Avenue 616-832-3755 W			
	t		
10 Lesse of well name (be as brief as possible) Well number X - S	<u> </u>		
Kalium Hersey 2082 X - BH	1		
	7	· · · · · · · · · · · · · · · · · · ·	
11. Surface owner		<u>i</u>	
IMC Kalium, Ltd.	S		
12. SURBOR ROBLOT	Соитку		
25 114 01 1444 114 01 344 114 01 360 SQ 111 14 K 014 1191 394	Osceo Caunty	)la	
19. If engineering potential respectively	Osceo	sie.	
ME 1/4 24 344 1/401 244 1/401 260 50 1 11/4 1/ 444 1/10104	_3 <u>000</u>	7164	
14. The surface location for this wall is		.41 11	
a 1438 feet from nearest (NVS) South section line AND 1319 feet from nearest (EW) West		otlon line	
b. 1158 feet from nearest (N/S) NOrth quarter section line AND 1319 feet from nearest (EAN) West		arter zeci	ion lite
15. Is this a directional well? No X Yas If yes complete lines 15 a & b , the bottom hole location for this well is	-		· · · · · · · · · · · · · · · · · · ·
		- 44 Alia a	
a 539 feet from nearest (N/S) south section line AND 1142 feet from nearest (E/W) West		ction line	
b. 839lest from nearest (N/S) Southquarter section line AND 1142feet from nearest (E/W) West	qu	कारिक सक्ट	tion line
16 The bottom hole location (whether straight or directional) of this well is			
feet from nearest (N/S)drilling unit line ANDfeet from nearest (E/N/)		lling unit	iine
17. Kind of tools 16. Is sour oil or gas expected? 19 Base of lowest known fresh water			s.i
☐ Rotary ☐ Cable ☐ Combination ☐ No ☐ Yes ☐ H₂S Cont. plan enclosed Formation ☐ III		908 etyce	
20. Intended total depth 21 Formation at total depth 22. Producing/injection formation(s) 23. Objectiv	-		
MD 8.000' TVD 7.850' A-1 Evaporite A-1 Evaporite Hersey P	otasn	·	reject
			reject
24. PROPOSED DRILLING, CASING AND CEMENTING AND SEALING PROGRAM			
24. PROPOSED DRILLING, CASING AND CEMENTING AND SEALING PROGRAM HOLE CASING CEMENT	V O C		บ้อ
24. PROPOSED DRILLING, CASING AND CEMENTING AND SEALING PROGRAM HOLE CASING CEMENT Depth (MD) Geol. Formation Bit Dis. O.D. Size WVFt Grade Condition Depth (MD) Secks T.O.C. V	v.o.c	Wt.	V <b>5</b> .
24. PROPOSED DRILLING, CASING AND CEMENTING AND SEALING PROGRAM HOLE CASING CEMENT  Depth (MD) Geol. Formation Bit Dia. O.D. Size WVP: Grade Condition Depth (MD) Sacks T.O.C. V			บ้อ
PROPOSED DRILLING, CASING AND CEMENTING AND SEALING PROGRAM           HOLE         CASING         CEMENT           Depth (MD)         Geol. Formation         Bit Dia.         O.D. Size         WVFt Grade Condition         Depth (MD)         Secks         T.O.C.         V           900'         Drift         17 1/2"         13 3/8"         48# J55. New/Used         900'         700         Surf.	18	Wt.	V <b>5</b> .
24. PROPOSED DRILLING, CASING AND CEMENTING AND SEALING PROGRAM  HOLE CASING CEMENT  Depth (MD) Geol. Formation Bit Dia. 0.D. Size WVPt Grade Condition Depth (MD) Sacks T.O.C. V  900' Drift 17 1/2" 13 3/8" 48# J55. New/Used 900' 700 Surf.  5000' Amnersteure 12 1/4" 9 5/8" 40#, K-55, New/Used 5000' 1,600 Surf.	16 16	Wi. 8.4 10.2	VIs. 27
24. PROPOSED DRILLING, CASING AND CEMENTING AND SEALING PROGRAM  HOLE CASING CEMENT  Depth (MD) Geol. Formation Bit Dia. 0.D. Size WVPt Grade Condition Depth (MD) Sacks T.O.C. V  900' Drift 17 1/2" 13 3/8" 48# J55, New/Used 900' 700 Surf.  5000' Amnerstaine 12 1/4" 9 5/8" 40#, K-55, New/Used 5000' 1,600 Surf.	16 16	₩1. 8,4	∪0 VIs. 27
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PROPOSED DRILLING, CASING AND CEMENTING AND SEALING PROGRAM HOLE CASING CASING CEMENT  Depth (MD) Geol. Formation Bit Dia. O.D. Size WVFt Grade Condition Depth (MD) Secks T.O.C. V  900' Drift 17 1/2" 13 3/8" 48# J55, New/Used 900' 700 Surf.  5000' Annesszeure 12 1/4" 9 5/8" 40#, K-55, New/Used 5000' 1,600 Surf.  8,000' A-1 Evap. 8 1/2" 7" 23#, L-80, New 7,950' 500 5,000'  25. Send correspondence and permit to IMC Kalium, Ltd. 1395 135th Avenue Hersey, MI 49639  CERTIFICATION 1 state that I am authorized by said applicant. This application was prepared under my supervision and direction. The facts stated disposal well, or \$50 for a Part 615 oil, graphication was prepared under my supervision and direction. The facts stated	16 24 Phone 616-8	Wi. 8.4 10.2 10.2 332-375	U0 Vis. 27 27 34
PROPOSED DRILLING, CASING AND CEMENTING AND SEALING PROGRAM  HOLE  CASING  CEMENT  CASING  CEMENT  CASING  CEMENT  CASING  CEMENT  CASING  CEMENT  Depth (MD)  Geol. Formation  Bit Dia.  O.D. Size  WVFt. Grade Condition  Depth (MD)  Secks  T.O.C. V  900'  Drift  17 1/2"  13 3/8"  48# J55. New/Used  900'  700  Surf.  5000'  Annesszeure  12 1/4"  9 5/8"  40#, K-55, New/Used  \$000'  1,600  Surf.  3,000'  A-1 Evap.  8 1/2"  7"  23#, L-80, New  7,950'  500  5,000'  Address  IMC Kalium, Ltd.  1395 135th Avenue Hersey, MI 49639  CERTIFICATION "I state that I am authorized by said applicant. This application was prepared under my supervision and direction. The facts stated herein are true, accurate and complete to the best of my knowledge'  Enclose permit fee of \$100 for a Part 615 oil, grid disposal well, or \$50 for a Part 625 disposal, brid etorage well. Make checks payable to State of the content of the part of the past of my knowledge'  CEMENT  CEMENT  CEMENT  CEMENT  CEMENT  Address  Include Program  This disposal well, or \$50 for a Part 615 oil, grid disposal well, or \$50 for a Part 625 disposal, brid disposal well, or \$50 for a Part 625 disposal, brid disposal well. Make checks payable to State of the part of the	16 24 Phone 616-8	Wi. 8.4 10.2 10.2 332-375	U0 Vis. 27 27 34
24. PROPOSED DRULLING, CASING AND CEMENTING AND SEALING PROGRAM  HOLE CASING CEMENT  Depth (MD) Geol. Formation Bit Dia. 0.D. Size WVPt Grade Condition Depth (MD) Sacks T.O.C. V  900' Drift 17 1/2" 13 3/8" 48# J55. New/Used 900' 700 Surf.  5000' Annierstaure 12 1/4" 9 5/8" 40#, K-55, New/Used 500' 1,600 Surf.  8,000' A-1 Evap. 8 1/2" 7" 23#, L-80, New 7,950' 500 5,000'  25. Send correspondence and permit to Address IMC Kalium, Ltd. 1395 135th Avenue Hersey, MI 49639  CERTIFICATION 1 state that I am authorized by said applicant. This application was prepared under my supervision and direction. The facts stated herein are true, accurate and complete to the best of my knowledge' Bequired. Make checks payable to State of 26. Application prepared by (print or type) Phone DEQ Cashier use only.	16 24 Phone 616-8	Wi. 8.4 10.2 10.2 332-375	U0 Vis. 27 27 34
PROPOSED DRILLING, CASING AND CEMENTING AND SEALING PROGRAM HOLE CASING CEMENT Depth (MD) Geol. Formation Bit Dia. O.D. Size WVP. Grade Condition Depth (MD) Sacks T.O.C. V 900' Drift 17 1/2" 13 3/8" 48# J55. New/Used 900' 700 Surf.  5000' Activeses 12 1/4" 9 5/8" 40#, K-55, New/Used 500' 1,600 Surf.  25. Send correspondence and permit to IMC Kallium, Ltd. 1395 135th Avenue Hersey, MI 49639  CERTIFICATION "I state that I am authorized by said applicant. This application was prepared under my supervision and direction. The facts stated herein are true, accurate and complete to the best of my knowledge.'  26. Application prepared by (print or type) Colin Howapa  Phore 616-832-3755	16 24 Phone 616-8	Wi. 8.4 10.2 10.2 332-375	U0 Vis. 27 27 34
PROPOSED DRILLING, CASING AND CEMENTING AND SEALING PROGRAM HOLE CASING CEMENT  Depth (MD) Geol Formation Bit Dia. 0.D. Size WVP. Grade Condition Depth (MD) Sacks T.O.C. V 900' Drift 17 1/2" 13 3/8" 48# J55. New/Used 900' 700 Surf.  5000' Administrative 12 1/4" 9 5/8" 40#, K-55, New/Used 500' 1,600 Surf.  8,000' A-1 Evap. 8 1/2" 7" 23#, L-80, New 7,950' 500 5,000'  25. Send correspondence and permit to INC Kalium, Ltd. 1395 135th Avenue Hersey, M1 49639  CERTIFICATION 's state that I am authorized by said applicant. This application was prepared under my supervision and direction. The facts stated herein are true, accurate and complete to the best of my knowledge' Broke 100 for a Part 615 oil, grade in true, accurate and complete to the best of my knowledge' Date 100 for a Part 625 disposal, broke 100 for a Part 625 disposal, broke 100 for a Part 625 disposal, broke 100 for a Part 625 disposal, broke 100 for a Part 625 disposal, broke 100 for a Part 625 disposal, broke 100 for a Part 625 disposal, broke 100 for a Part 625 disposal, broke 100 for a Part 625 disposal, broke 100 for a Part 625 disposal, broke 100 for a Part 625 disposal, broke 100 for a Part 625 disposal, broke 100 for a Part 625 disposal, broke 100 for a Part 625 disposal, broke 100 for a Part 625 disposal, broke 100 for a Part 625 disposal, broke 100 for a Part 625 disposal, broke 100 for a Part 625 disposal, broke 100 for a Part 625 disposal for a Part 625	16 24 Phone 616-8	Wi. 8.4 10.2 10.2 332-375	U0 Vis. 27 27 34
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## SURVEY RECORD OF WELL LOCATION

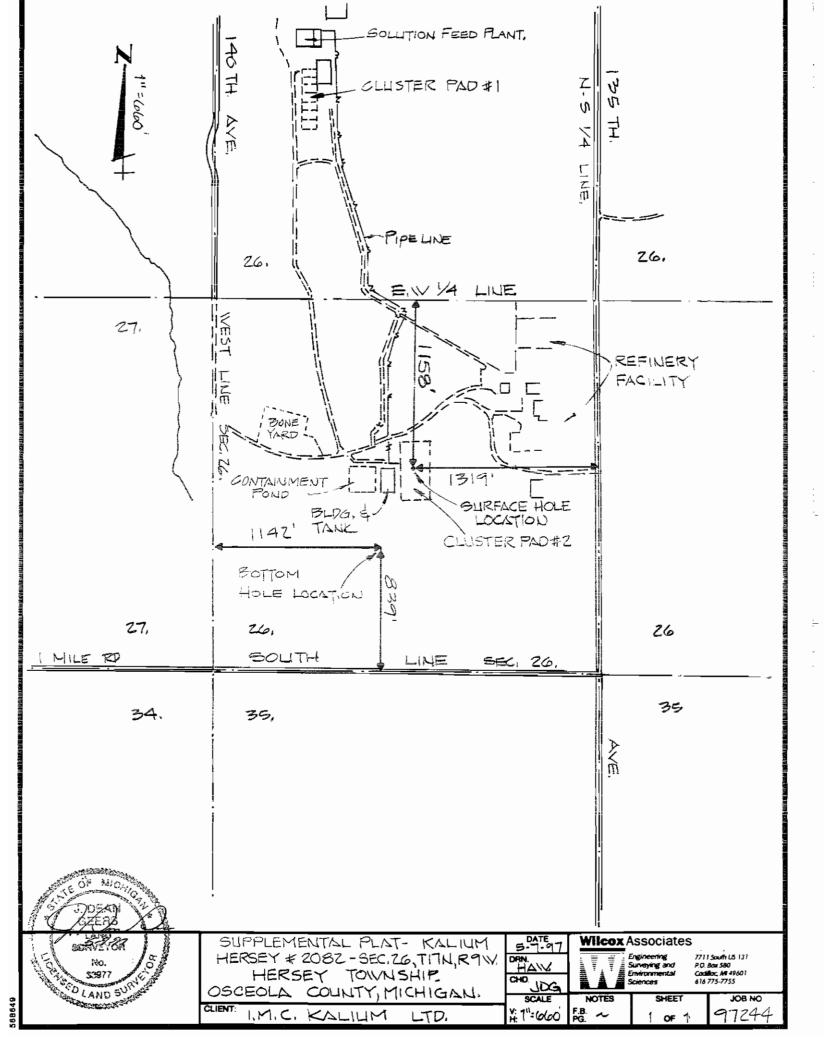
This infromation is required by authority of Part 615 Supervisor of Wells, or Part 625 Mineral Wells, of Act 451 PA 1994, as

IMC Kalium, Ltd.

Applicant

Well name and number

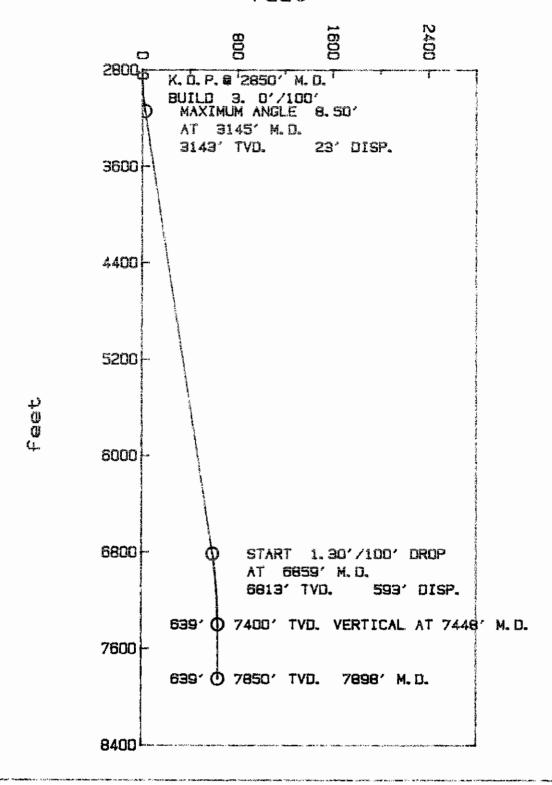
	ame	nded, i	n order	to obtain a	a drilling permit			Kalium Hers	sey #2082		
1a. Surface lo	cation								Township	Cour	nty
SE 1/-	4 of   N	١W	1/4 of	SW	1/4 of section	26	T 17N	R 9W	Hersey	Osc	ceola
1b. If this is a	direction	nal well	, botton	n hole loca	tion will be				Townshi	Cour	nty
NE 1/	4 of S	SW	1/4 of	sw	1/4 of section	26	⊤ 1 <b>7</b> N	R 9W	Hersey	Osc	ceola
instructions: well in two dir	Outline ections for	drilling rom the	unit for e neare	oil/gas westion	ells (Part 615) or p , quarter section, a	roperty and unit	boundary (or prope	y for mineral wells erty, Part 625) lin	s (Part 625) and spot v es	vell location on plat si	hown. Locate the
2. The surface	e locati	on is									
1438 1	ft from n	earest	(N/S)	south	section line						
	t from n	earest	(E/W)	west	section line		PLAT BELOW REPRESENTS ONE FULL SECTION (1 MILE SQUARE)				
and 1158	t from n	earest	(N/S)	north	quarter section	n line		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	:	1	N T
	t. from n				quarter section						
3. Bottom ho					quarter bootion	11110	$\dashv \mid$				
839	t from n	nearest	(N/S)	south	section line						
1142	ft from n	earast	(EMV)	west	section line					. ,,,,,,,,	
and		ieuroo.	(=/**/	******							
839	ft from n	earest	(N/S)	<u>south</u>	quarter section	n line			SECTION	26	
1142	t. from n	earest	(E/W)	west	quarter section	n line	Manual Park		1 22011011		:
4 Bottom ho	le will b	e (dire	ctional	or straight	)				1-1		
	īt. from n	neare <b>s</b> t	(N/S)		drilling unit line	е			58-		
	ft. from n	earest	(EW)		drilling unit lin	e	-	1319'	1319'		
					if it is not readily		7   1			Surface	
					the East, off o			11421	===	-Hole	
	nue, al	long a	an exi	sting ac	cess road to the	ne		Ť	8 Bottom	Location	1
site								83	Hole		
								وَا	Location		
								Y	7		<u>:</u>
6 Zoning	Resid	dential	effecti	ve date			_				
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	Othe						•				
					CATE, IDENTIFY					4)- 1-1	
B All jal	es, strei es within	ams w	etlands feet of t	, drainage he stake.	-ways, floodplains	, enviro	nmentally	sensitive areas,	ures, within 600 feet of natural rivers, critical o	lune areas, and threa	
					vells within 2000 fe	et and	all type II		ater supply wells within		
	idual whi	o serve	erea sit	J. Dea	n Geers, Prof.	Surv	eyor	Company Wilcox A	ssociates, Inc.	Date of surve	y 
Address	140. 0977	100		7711 8	S. US-131 P.O	. Box	580 C	adillac, MI 4	9601	Phone 616-775-7	755
					RMATION IS CO	MPLET	E AND A	ACCURATE TO	THE BEST OF MY K	NOWLEDGE AND B	ELIEF,
Signature of								1.411.411.414.1		Date	
	11	_/	(Je							5-9-97	



# IMC KALIUM KALIUM HERSEY # 2082 HERSEY TOWNSHIP , OSCEOLA COUNTY

VERTICAL SECTION 1 IN. - 800 FT.

#### feet



IMC KALIUM

OBJECTIVE NO. 1: 639' S15.16'W OF

KALIUM HERSEY # 2082

SURFACE LOCATION

HERSEY TOWNSHIP , OSCEOLA COUNTY 7448' M. D. 7400'

TVD. 616' SOUTH 168' WEST

PLAN VIEW IN. = 200 FT.

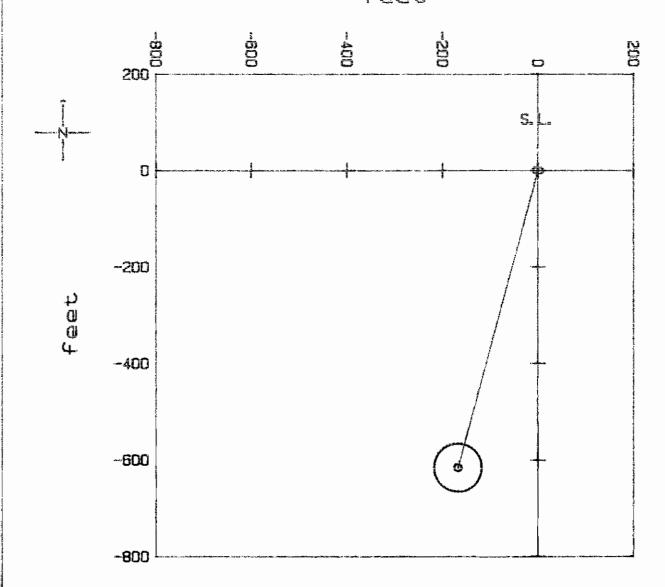
OBJECTIVE NO. 2: 639' S15.16'W OF SURFACE LOCATION

7898' M.D. 7850' TVD.

SUBMITTED BY:

Directional Drilling Contractors, Inc.

50' RADIUS TARGET feet





#### IMC Kalium Chemicals Ltd.

1395 135th Ave. Hersey, MI 49639



To: Permits and Bonding Unit Geological Survey Division Department of Environmental Quality P.O. Box 30256, Lansing, MI 48909-7756 Date: May 14, 1997

Casing and Cementing Procedures
Kalium Hersey 2082

- 1 Conductor pipe of 30" diameter will be driven to refusal for this well (usually 80-90 feet) Surface hole will be drilled with a 17 1/2" bit, 100 feet into the competent rocks of the Michigan Group at a depth of approximately 900 feet. The exact depth will be determined by a certified geologist. New or fully inspected used 13 3/8", 48#/ft., J55 seamless casing will be run to bottom with a Texas pattern shoe. The bottom three joints of casing will be strapped across the collars in three sections. The casing will be cemented with returns to surface. Wait on cement time will be 16 hours.
- 2. The 12 1/4" intermediate hole will be directionally drilled to 100 feet below the base of the Detroit River Salt at a true vertical depth of approximately 4900 feet, as local drilling shows no lost circulation zones deeper. Intermediate casing, new or fully inspected used 9 5/8" 40#/ft., J or K55, seamless casing will be set at this depth and two stage cemented to surface as per cementers recommendations in line with accepted cementing practices. Wait on cement time will be 16 hours.
- 3. The 8 1/2" production hole will be drilled into the A-1 Evaporite to a true vertical depth of approximately 7850 feet. The primary objective of this well is the evaluation and production of the potassium chloride and sodium chloride mineralization of the A-1 Evaporite. The evaluation program will consist of coring of appropriate sections of the A-1 Evaporite as well as appropriate geophysical logs. Production casing will be new 7", 23#/ft., L80 seamless casing set in the A-1 Evaporite and cemented back to 5000 feet with premium cement. Wait on cement time will be 24 hours.
- 4. After well operations cease, it will be plugged and abandoned according to Department of Environmental Quality requirements.

Colin D. Howard
Production Geologist



## Michigan Department of Environmental Quality - Geological Survey Division

# **ENVIRONMENTAL IMPACT ASSESSMENT**

Required for issuance of well permit pursuant to Part 615, 1994 PA 451, as amended. Falsification of this information may result in fines and/or imprisonment. Check all boxes and fill in all blanks which apply to this drilling application. Attach additional pages as necessary

A. DESCRIPTION OF PROJECT

1. Applicant's name	Well name and number
IMC Kalium, Ltd.	Kalium Hersey #2082
2. Intended use of well	
Development of potash from the A-1 Evaporite	
3. Applicable spacing order and drilling unit size	□ 0 0 0 0 0 0 0 Mich Autries 40 cores
S.O. 14-9-94 N. Mich. Antrim, 80 acres	S.O. 3-3-95 S. Mich. Antrim, 40 acres
S.O. 1-73 Niagaran, 80 acres	S.O. 2-81 Oakland Co. Niagaran, 40 acres
R 324.301 General rule, 40 acres	S.O. 1-86 P.D.C , 640 acres
☐ Field Spacing or Unitization Order (identify)	
Antrim USP (identify name, number of acres, and number	of drilled and permitted wells)
Administrative exception requested per Rule 324 303	Subsection 2 or Subsection 3
Enclose voluntary pooling agreement and plans for develo	
Exception to spacing requested, petition for hearing filed	F
Non-producing well, no drilling unit	
4. Applicant's right to drill and produce	<u></u>
Are all mineral interests in the drilling unit under lease and	controlled by the applicant/permittee?
Yes No Not applicable, non-producing well	,
If no, petition filed for compulsory pooling OR I If no,	attach certified efforts to obtain leases.
5. Special considerations	
Replacement well for permit no	
⊠ Existing well pad	
Other (describe)	
B. IMPACTS AS A R	ESULT OF DRILLING
1. Dimensions of drill pad N/A x N/A	of access roads_N/A x_N/A .
Describe access route to well during drilling From the interse	ction of 135th Avenue and One Mile Road, then north along
135th approximately 0.25 miles to the Kalium Facility access	
existing Cluster #2 Pad and well site.	Todd, their westerny approx. c.20 mines already reality to the
2. Describe the topography	MAGGENETI
Identify the direction of and percentage of slope(s):	
	_
a. At the well site Existing well pad. No earthwork will be ne	eded.
b. Along the access to well site - there will be no new access	
3. Describe the land cover (type, density, species of trees) a	and present land use:
a At the well site - Existing well pad. No cover. Land use is	s commercial.
b. Along access to well site - no new access needed. Land us	
4. Identify the distance and direction to any of the follow	ing:
a. All buildings, fresh water wells, public roads, powerlines an	
There are no residences or fresh water wells within 600' of the	e wellsite. The Kalium Processing Facility lies on land
around Cluster #2 Pad.	
b. All Type I and Type IIa public water supply wells within 200	JU.
None	
None  c. All Type II b and Type III public water supply wells within 8	00' of the well site
6. Aii 19Pe ii b and 19Pe iii public water supply wells within 8	of the well site.
None	
Type I is a community water supply with year-round service ≥	15 living units or ≥ 25 residents. Type II is a non-community
water supply with ≥ 15 service connections or ≥ 25 individuals	
production: IIA ≥ 20,000 GPD IIB <20,000 GPD Type III is a	public water supply which is neither type I or II.

Part B-4 continued d. Surface waters, floodplains, wetlands, natural rivers, critical dune areas, threatened or endangered species within 1320'
of the well site: None
Are all items in part B-4 are shown on the supplemental plot?   Yes  No
If not, why?
5. Identify the source of fresh water used to drill this well  "Permanent" water well, to be retained after final completion OR used for drinking water (shall be drilled and installed pursuant to Part 127 of 1979 PA 368, as amended).  "Temporary" water well, will be plugged upon final completion and not used for drinking water (consult R 324.403 (2) for minimum construction requirements).  Fresh water will be hauled from existing water well or municipal source (identify): Located at Kalium Facility  No fresh water will be used in drilling this well.  8. Handling and disposal of drill cuttings and muds
☐ On site in-ground pit, anticipated dimensions: L W D
Remote in-ground pit, anticipated dimensions: L W D  Attach approval of landowner and attach survey of remote pit location
☐ Temporary pit, cuttings and muds disposed at (identify)
No in-ground pit, cuttings and muds disposed at (identify) Northern Oaks Landfill     □ Depth to ground water expected 0'- 4' below the base of pit     □ Pit will be solidified.     □ Existing pits on location - identify location
C. IMPACTS AS A RESULT OF PRODUCTION
1. Kind of well ☐ exploratory ☐ development ☐ Antrim project 2. Location of surface facilities (Refer to R 324.103 (m))
☐ Greater than 300' from wellhead at¼,¼,¼, Sec, T, R (complete C-3)
Surface facility exists or was previously approved for construction and is known as IMC Kalium Potash Fac. (omit C-3)
EIA for surface facility is found in another document (Identify where it is found)(omit C-3)
☐ Surface facility and all flowlines are within 300' of the wellhead (omit C-3)
Surface facility location was not determined for this <b>exploratory</b> well (omit C-3). A separate request for <u>surface facility location approval</u> , which will include an Environmental Impact Assessment as well as a Soil Erosion and Sedimentation Control Plan, will be submitted to District Geologist prior to construction pursuant to R 324.504.
3. Surface facility Environmental Impact Assessment (describe or attach supplemental plot identifying the following)
a. Dimensions of surface facility:
b Access route to the surface facility
c. Route of flow lines from well(s) to surface facility
d. Topography, direction, and percentage of slopes at the surface facility



MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY - GEOLOGICAL SURVEY DIVISION

SOIL EROSION & SEDIMENTATION	Name and address of applicant	
CONTROL PLAN	IMC Kalium, Ltd.	
By authority of Part 91, and Part 615 or Part 625 of Act 451 PA	1395 135th Avenue	
1994, as amended Non-submission and/or falsification of this	Hersey, MI 49639	
information may result in fines and/or imprisonment		
Part 615 Oil/Gas Well Part 625 Mineral Well	Phone: <u>(616)832-3755</u> Fax:	()
2 Well or project name:	3 Well or project location:	
Kalium Hersey #2082	Section(s) 26	т1 <b>7N</b> к9W
4 Name and address of County or local Enforcement Agent (CEA)	5 Township	6 County
Osceola County Soil Erosion Control	Hersey	Osceola
Courthouse	7 Date earth changes expected to star	
301 W. Upton Avenue	Not Applicable	
Reed City, MI 49677	8. Date of expected completion	
Phone: (616) 832-3261	Not Applicable	
9 Name and address of person responsible for earth change:	10. Name and address of person resp	onsible for maintenance:
Traine and address of person responsible for cardi offange.	To Hame and address of person resp.	orisible for mainteriarioe.
Not Applicable	Not Applicable	
Not Applicable	Not Applicable	
Phone: ()	Phone: ( ) Fax:	( )
11 Send copies of supplemental plat required by Part 615, R 324 201(2)(b) or		
The Send copies of supplemental plat required by Part 615, K 324 201(2)(b) of	R 524 504(4), and this form and all attac	chiments to CEA
Date sent to CEA SAME		
	GE ACTIVITIES	
12. Project description: (Project activities may be permitted sequentially.)	ar youriles	
a Number of well sites N/A , N/A acres	d. Flow line(s) trenched in off well site	* N/A feet N/A acros
b Number of surface facility sites N/A , N/A acres	e Flow line(s) plowed in off well site*	
c. New access roads N/A feet, N/A acres	*Contact CEA for fee schedule	ivia leet, ivia doles
13 Describe sites for which permits are being sought under Part 301 (Inland La	,	<del></del>
Describe sites for which permits are being sought under Part 303 (Wetland List file numbers if known	s) None	<del>-</del>
14 Areas requiring control structures	- to the Western seeds are some seeds as E00	Ol -5 d4 -l (F0) to 400()
Will earth changes occur in areas with slopes of 10% or greater; areas where runoff valley bottoms etc; areas within 500' of a lake or stream; or other areas where sedim	water is likely, such as runs greater man occ entation to a welfand or drainage way may o	or or moderate slope (5% to 10%), narrow sccur?
<u> </u>		
Yes Attach detail map at scale of 1 =200 or larger, with contour lines at a Also indicate any of the following erosion control structures that will be utilized.		
Indicate on plan whether erosion control structures are temporary or p	•	all platt
, , ,		
☐ Diversions ☐ Culverts ☐ Sediment basins ☐ Silt fences ☐	] Rip-rap ∐ Berms ∐ Check dams i	Otner
No	111111111111111111111111111111111111111	Walled Miles Control of the Control
15. Site restoration		
	No topsoil on site	
Recontour and revegetate as soon as weather permits Seed mix Not App	licadie	
Describe other proposed methods of restoration	,	
16 Application prepared by (name)	h	D/2 /1
	áture	5/20/97
	cocat	5/20/1/
	LOCAL ENFORCING AGENT	to the control of the
INSTRUCTIONS TO COUNTY OR LOCAL ENFORCMENT AGENT: Return Division within 30 days of receipt Explain reasons for recommendation or disa		
the plan	pproved and conditions required for appre	oval molecule ospices of any revisions to
17 Comments		AAAAAAAAAA
17 Comments		
Conducted on site inspection Date		
Inspected site with representative of applicant  Date  Date		
18 Approved Disapproved		

Applicant

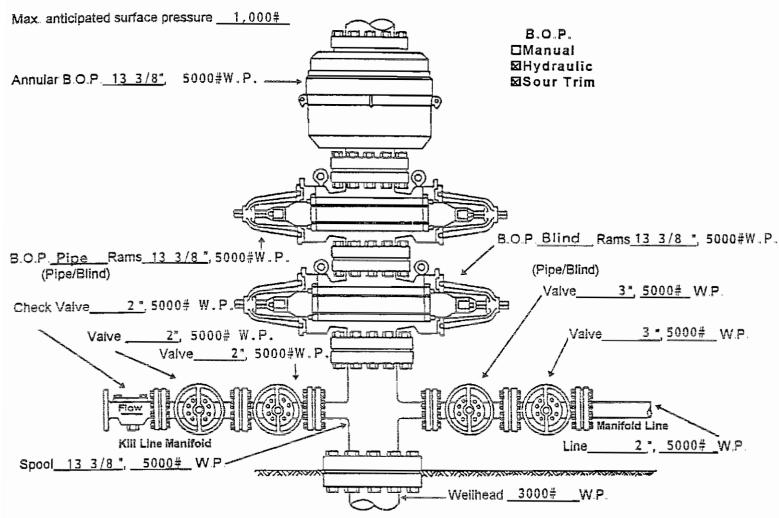
#### WELLHEAD BLOWOUT CONTROL SYSTEM

Worksheet supplement for "Application for Permit to Drill or Deepen a Well"

This information is required by authority of Part 615 Supervisor of Wells or Part 625 Mineral Weils, Act 451 PA 1994, as amended, in order to obtain a permit. IMC Kalium, Ltd.

Weil name and number

Kalium Hersey #2082



Fill above blanks with applicable information. If not applicable, enter "N A." or cross-out item shown. Describe test pressures and procedure for conducting pressure test. Identify any exceptions to R324 406 being requested.

Blowout prevention equipment will be tested to a pressure commensurate with the expected
formation pressure, but not less than 1,000 psig at surface, for not less than 20 minutes
before drilling the plug on the surface casing, intermediate casing and the production
casing and before encountering all high-pressure formations and at other intervals as
approved or requested by the Supervisor of Wells.
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EOD 7200.4 (Pay 10/06)

# SOUR GAS CONTINGENCY PLAN - PART II IMC KALIUM, LTD. KALIUM HERSEY #2082 SECTION 26, T17N, R9W HERSEY TOWNSHIP, OSCEOLA COUNTY, MICHIGAN

#### RESIDENTS WITHIN 1/4 MILE OF WELLSITE

1 IMC Kalium, Ltd

Refinery

Phone: 616-832-3755

#### **EMERGENCY TELEPHONE NUMBERS**

<u>Name</u>	Location	<u>Number</u>
Kalium Company Personnel		
Mr Rob Plosz	Hersey, MI (Office)	616-832-3755
Mr Paul McMillen	Hersey, MI (Office)	616-832-3755
MDEQ		
Cadillac District Geologist	Cadillac, MI	616-775-3960
Mr Ray Vugrinovich	Lansing (Office) Lansing (Home)	517-334-6945 517-339-9547
Sheriff	Osceola County	911
State Police	Cadillac, MI or Big Rapids, MI	911 616-832-2221
Ambulance / Emergency	Osceola County	911
Hospital	Reed City Hospital 7665 S. 220th Avenue Reed City, Michigan	911 or 616-832-3271
Director of Emergency Services		
Dallas Jenks	Osceola County (Office) or in an emergency	616-832-6172 911
Fire Department	Osceola County	911

#### PAGE 2

#### SOUR GAS CONTINGENCY PLAN - PART II IMC KALIUM - KALIUM HERSEY #2082

Pollution Emergency Alerting System (PEAS)

800-292-4706

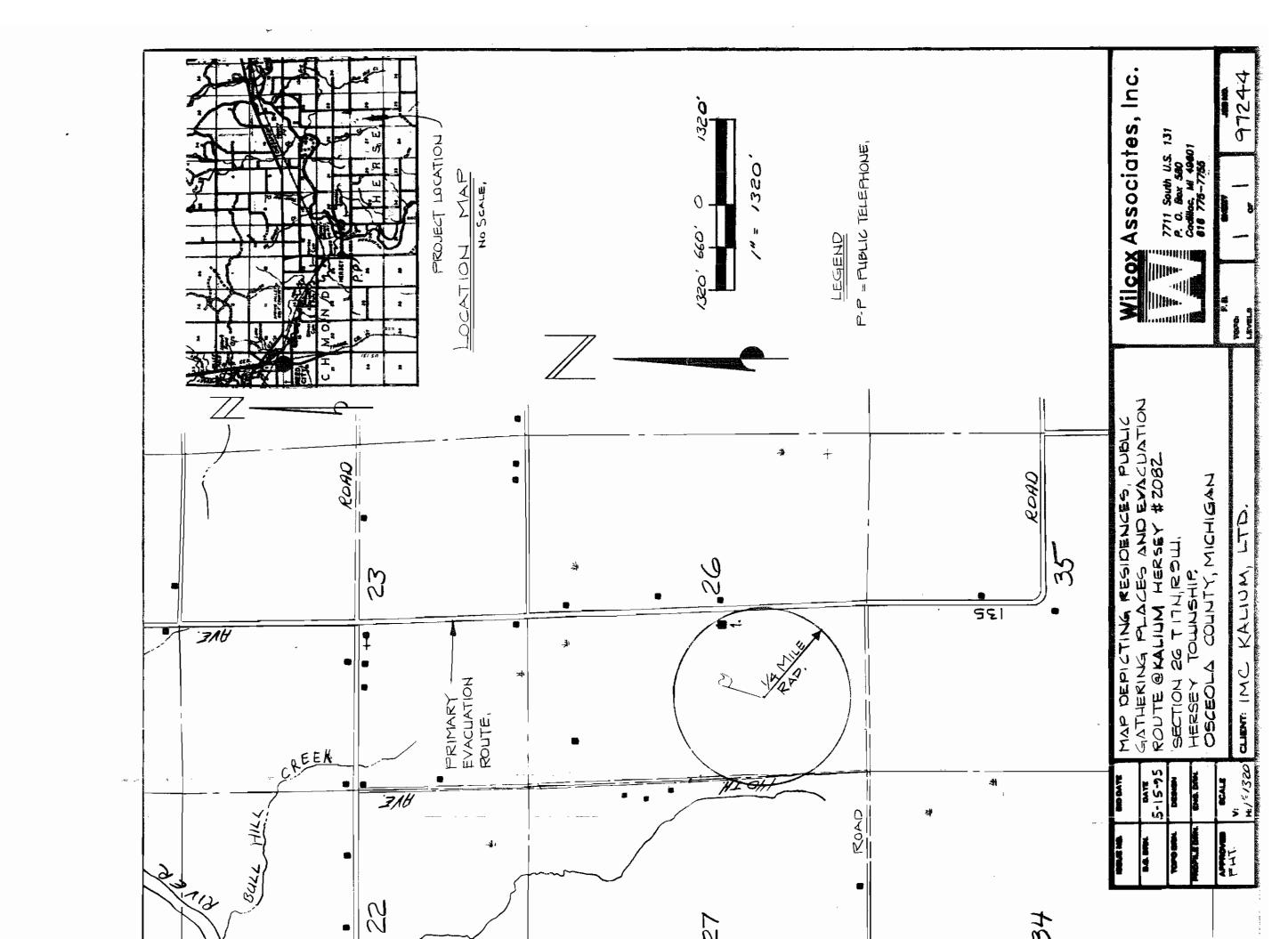
#### NEAREST PUBLIC TELEPHONE

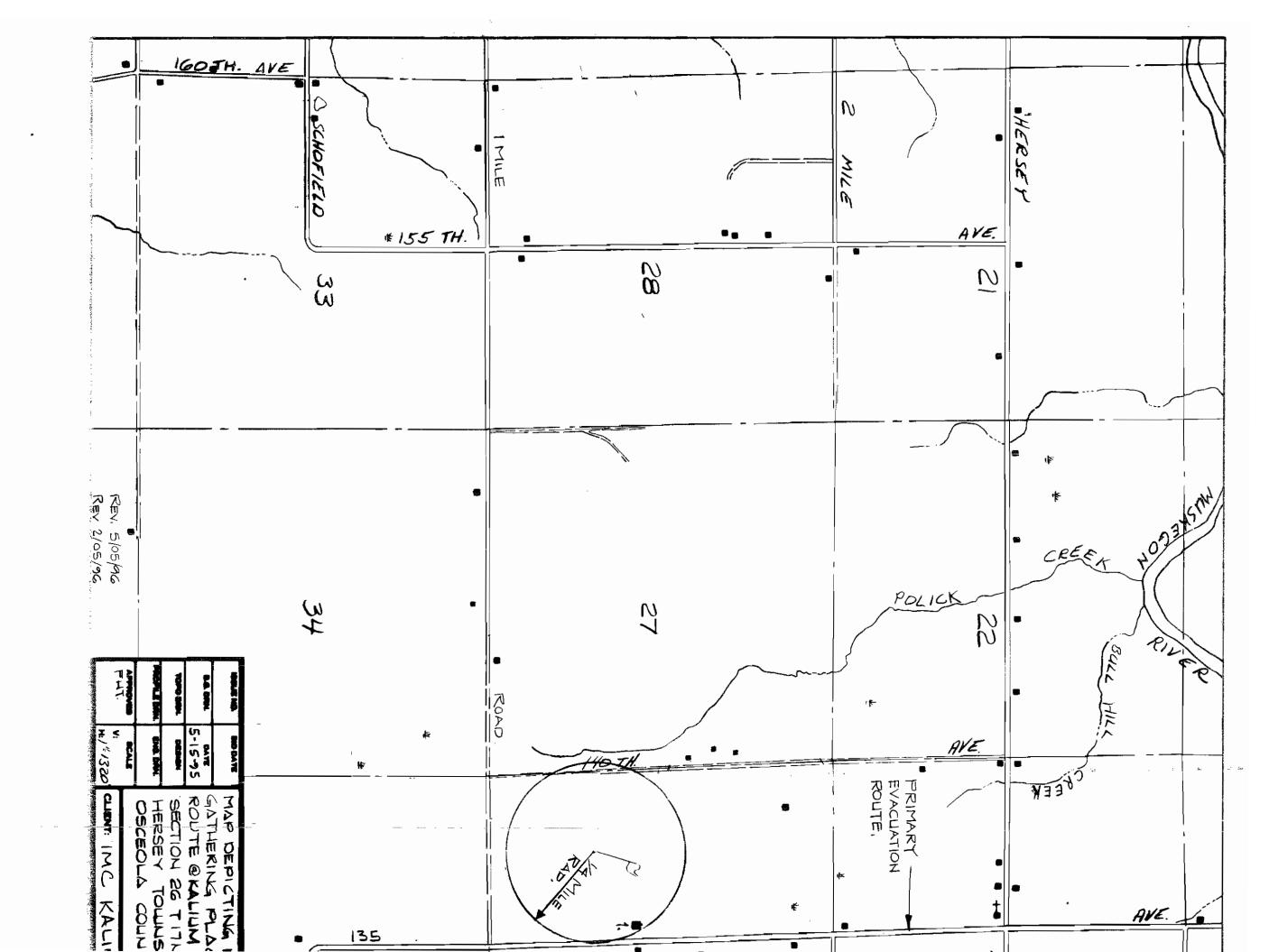
The nearest public telephone is located in front of the General Store in the Village of Hersey. This is located approximately 1/4 mile east to 135th Avenue, then north on 135th Avenue approximately 3/4 mile, then west approximately 4-1/2 miles on Hersey Road to 180th Avenue.

#### MUD TREATMENT

A gas buster will be provided

Note: For locations of residences, public gathering places, and evacuation routes, see Vicinity Map





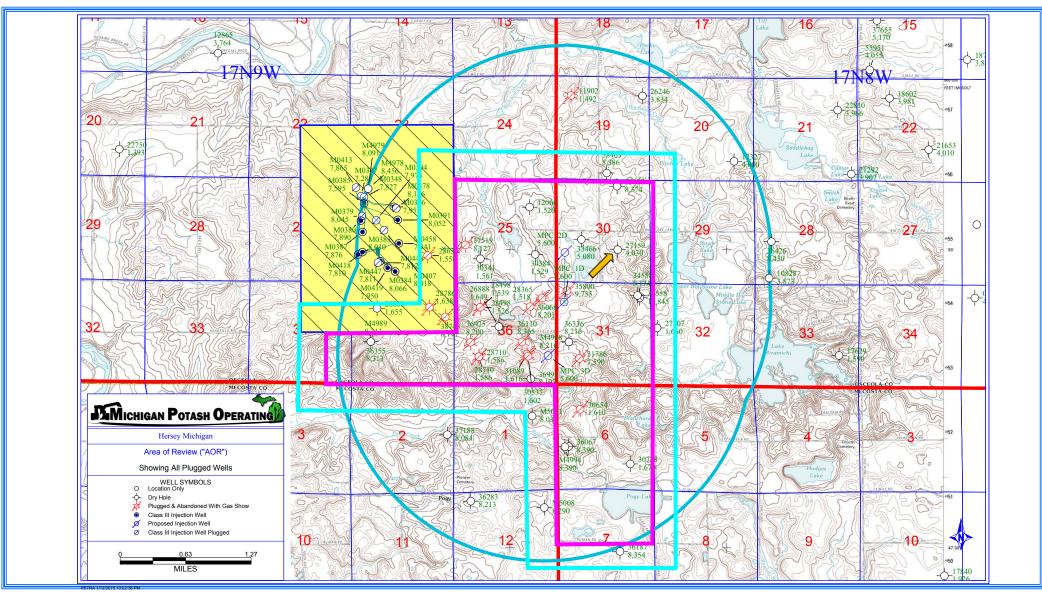


Figure B4. Map showing all plugged wells, shallow (that do not penetrate any confining horizon) or deep (that penetrate confining horzion) within the area of review. Total Depths are listed. There are several shallow Michigan Stray wells that do not penetrate the injection or confining horizon.



#### **MADDERN 1**

# SE NW SE Sec 30 T17N R8W OSCEOLA COUNTY, MI

#### **CURRENT WELLBORE DIAGRAM**

**PERMIT No. 27159 UPDATED APRIL 2014 BY JLT** API No. 21-133-27159-00-00 GL @ 1146' 10-5/8" Hole exptected KB @ 1161' **SURFACE CASING** WELL COMPLETION DATE: 2/27/1968 8-5/8", 32#/ft. PLUGGING COMPLETION DATE: 2/27/1968 SET @ 914' KB 500 SX CMT + 20 SX in top of cellar 1548' Stray **PLUGGING** Run drill pipe to TD (4030') and spot 35 SX CMT on bottom. Pull drill pipe to 1600', spot 35 SX CMT through Stray. Pull drill pipe to base of the 8-5/8" surface pipe, spot 20 SX CMT Pull remainder of drill pipe. 8-5/8" surface pipe abandoned with the well. Cut pipe off 3' below ground level, spot 5 SX CMT. 3890' DUNDEE TOP 3953" REED CITY ANHYDRITE TOP 3968" REED CITY DOLOMITE TOP

TD @ 4030' KB

#### MADDERN 1 WELL HISTORY

<u>DATE</u>	DESCRIPTION
1/31/1968 2/22/1968	SPUD. DRILLING COMPLETED.
	8 5/8" SET AT 914'; 500 SX CMT + 20 SX in top of cellar
2/12/1968 2/27/1968	Run drill pipe to TD (4030') and spot 35 SX CMT on bottom. Pull drill pipe to 1600', spot 35 SX CMT through Stray. Pull drill pipe to base of the 8-5/8" surface pipe, spot 20 SX CMT Pull remainder of drill pipe. 8-5/8" surface pipe abandoned with the well. Cut pipe off 3' below ground level, spot 5 SX CMT.
2/27/1968	PLUGGING COMPLETED

AUDERVISOR NE

ENDER AUTHORITMENT ACT 61, P.A. OF 19 9. AS AGENCIO, AND OUT J.C. C.A. 1937 46 ANTHORIS.

SUPERYISOR OF WELLS	
GEOLOGICAL SURVEY	
MICHIBAN DEPARTMENT OF CONSERVATION	ŧ
LARSING, MICHIGAN 48926	

s See '	Pavarsa Sida Re	fore FILE	ing Out This	Application -		;
A STATE OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF T	GREE SHELL OF	ingeren e verende Engelen e verende	2,0416	18-68	\$ 25.00	e e e e e e e e e e e e e e e e e e e
	Las recommended in the contract of the particular	moottdate	d-Gas-Compa	m Mellow		P ( )
	S CERMANIST AND CO		Detroit, H	tehtgan 48226	313 + 969	5-8000
30	II. MADDONA	TE OF CAMPED	FEIRERAL RIGHT	s)	8, ¥(1, th),	
	9. SURFACE OFFICE 1	I F DTOLR THAN	MINIMAL OFNER)			
	Company to					
	Reed City,	Michigan	,		12. PHONE 61.6 + 832-	5551
E LOCATE SELL AND OUTLING SERVE OR SECTION PLAT - 640 FORES		NW 1 ar 1	580 1. Sec		17Л , в 8₩	
14. Acres in tease or the tarrery)	15, tomeship Evorti	e Limnos vistores in anglilli may Angelighi	· · · · · · · · · · · · · · · · · · ·	16, County Osceo	). 	-
11. Locate well in two direc	ctions from neurest	liner of qua	rter section an	d property ownersh	ip or unit lines.	
9/10 rr. rem Morth	LINE OF QUARTER S	ECTION (	990	FT. FROM West		TION S
910 rt crea Horbit (north-1011)	~ 1	l .	330	FY: FROM East	t) (PROPERTY <mark>POPERTY</mark> ) L	INE (4
				(eust-wes		4 .05
(Cable, rotary, combination)	otury C	MPLIFED IN	Reed City 2	ione FORMATION	20. Intended Derth of 3900 feet	F WELL
21, PROGRAM OF CESSING, SCALING, CENERT	INS AND COMPLETING	Mark :	. 1		<del>-</del> .	
		n 0 = 10			andr un	
	itely 700 feet to surface. I					
•	igh the product	•				
t control of the cont	equipment will.	be used 🕅	dde <b>drilli</b> n	g and completi	ng -	
well.						
CASING IS NOT TO BE						
LINEU ABOYE WITHOUT	APPROVAL OF THE	SUPERVISOR C	F WELLS OR HI	S AUTHORIZED REPR	ESENTATIVE-	
22. ARE THERE ANT LAKES, STREAMS, SPAIR			•	UILDINGS OF OTHER S		
DR MARSHES MEARER THAN 300 FEFT 194 24, IF ANSWER TO NO. 22 ANOVE 15 Yes. C	Contraction and the first section of the contractio	No [3]	WITHIN 75 PEET	OF THE PROPOSED LOC	ATTON? No [X]	
GIVE DISTANCE FROM LOCATION.	or service of the	1	15.			
	-	1	1 (1)			
APPLICANT AGREES TO CONTILY WITH THE PE	IA TOL 10 SHOLS OF	PURLIC ACTS	01 1970 AS AU	ENDED. AND ACT 326	PUBLIC ACTS OF 1937.	43
AMENDED, AND RULES AND REQUESTIONS PER						
WELLS. BEFORE-COMMERCING OPILLING OPI						t vi prod <del>an</del> e denomini
25. ACCRESS CORRESPONDENCE II. O. An Route 2,	karberg, Michiq Box 103-8, No	gen Consol ed City, M	idat <b>ed Ga</b> s ( ichigan	Company	26. PHONE 616 + 832-5651	
LEAVE BLANK	and the state of t	27,004ER 08	NTCH		TED GAS COMPANY	*
DATE ISSUED		PEASE SI 28. AUTHORIZ	31113 	11/	The second of th	en en en en en en en en en en en en en e
реямия но. <u>27/5.7</u>		REPRESEN	early My	H. Vary-8	4R	ا
FOR CASHIFR'S USE ONLY	. OO NOT BOITF IN	HIT SPACE	(/	00	NOTES INTERIOR	, ,
10.25 £ A 11 E	02586 80.6	I-lyr	,	1.WHITE & LANSING 2.CANARY & CASHIE 3.GLUE & FIELD		

A STATE OF A STATE OF THE RESTRICTION - BOX 30028 - CANSING, HE AS

#### STATE OF MICHIGAN

# DEPARTMENT OF CONSERVATION Nº

8935

SUPERVISOR OF WELLS

# PERMIT TO BRIEL A WELL FOR OIL OR GAS

(POST WHITE COPY OF PERMIT AT WELL LOCATION)

Permit No	27159	•	1 44 1 4	Date Issued	January 22,	1968
Permission in	s hereby gi <del>a</del> nted to	<b>Michi</b> llen G	oneolidat	ed Gas Company	Madbe.	She
***************************************		One Rundus	rd Arribud	. Detroit, Mich	<b>igen</b> 48226	ا د میگی مانید شده این
Lana Nau	N. N. idara		drina		One	14 - 14 - 14 - 14 - 14 - 14 - 14 - 14 -
IXUSEL NRIGE	H. Maddorn			Sam Well Number.	engeneration of the special and a second of the special an	and a respect to the second
To drid a wel	There is a second	CHER AND	a orth	karrigana in agrapa sakarria 1	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	المعتز بمزخسه
in the	sek ink sek of s	eption 30. T.1	711 IL . ERI	. Evert Typ.,	Osceola Co.	je. Haristotikano L
and Iveated	940 from the no	rth and 990° f	rose the s	est line of qua	rter section	1:
and located.	940 from the no	reh and 330' £	rom the a	ast property 11	De	
1937, as ame	s issued ambject to the uded, and rules, regul of Conservation.					
			GERALD	e. Eddy, superv	180R OF WE	A.B
			By. 6	Robert Mi	ackers	i iski m ilmani

# SPECIAL REQUIREMENTS

#### NOTICE

DRILLING FERMIT ISSUED on the basis of the drilling, casing and sealing program as outlined on the exapplication for permit and subject to special requirements as set forth above. No change or alteration is to the made without the permission and approval of the Supervisor of Wells or his authorized representative.

DRILLING OPERATIONS ARE NOT TO BE COMMENCED initit all the well location requirements have been completed and the permit has been posted in a conspicuous place at the well site.

#### DEPARTMENT OFFICES

Lansing, Phone 517-373-1256 Mount Pleasent, Phone 517-773-8691 Cadillac, Phone 616-775-3181 Plainwell, Phone 618 685-8051 - Imlay City, Phone 313-724-7015 Escanaba, Phone 906-786-0333 :

EIVISION - BOX 30028 -

PERMITS MAY BE TRANSFERRED ONLY WITH THE PERMISSION OF THE SUPERVISOR OF WELLS

mi (Tim)

# RESTAVA PER PROPERTY AND STATE OF THE STATE

**自11月1日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 11日 | 1** 

# SURVEY RECORD OF WELL LOCATION

(Subsit in triplicate with Application for Penn't to Drill a Well for Oll, Gas. Geological Test, Brine Misposul, or Key Well for Secondary Recovery)

Operator Michigan Congress to the Day	
Voll Name H. M. 3-1 R	Number 1
	Not Sention 30 , t 17 NS, h 8 8
	1. locate well mite and show acreage in lease.
?	2. Locate well in two directions from nearest quarker meetion lines and from nearest lease or ownership property lines.
	740 it. from North line of querter cection.
990' 330	990 ft. from West line of quarter section.
	1940 ft. from North leans of property line.  (morth-seath)  330 ft. from East lease of property line.
	(rest-west) 3. Is location staked? You
	If location is not staked, describe how it is identified
(Scale of pint -1 inch equals 660 leet)	
5. Type of land and cover	form lund, grace, bruch, timber, etc.)
Are any lakes, etrema, examps, drainagemeys, etc., with plat, about distance from site and give brief description regular location because of singhill c	allias location was staked 50' Borth of
Are any roads, power lissa, regularly used buildings, et survey plat, show distance from site and give brief desc	tc., within 75 fent of well size? NO If you, locate an cription.
-	
Surveyed by Mone Carrion Surveyor Mane (1) No Contract Co	Nele
CERTIFICATION: I certify the above in praction is coupl	lete and to urate to the best of my knowledge and beissef.
	MICHIGAN CONSOLIDATED GAS COMPANY
January 18, 1968	Signature John A Vary- 966
_	

PROCEEDINGS OF THE PROPERTY OF

# WELL LOCATION REPORT

Permit No. 22129				
perator Michigan Consulidated G is Co.	Madley Vac			
arm Name H. Maddern Al	:: 		 	·
otification N.C.C.C. called to antora com	eroing drilling.			· .
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ature of Location Open grass Land.		- :		
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istance from Water No water.				
TERRICE 11/34 Hatel	t i k			
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			PATAINTENT OF COMBERVATION MAY 2 1 1968
	1		LOG OF OILL GAS OR TEST WELL
•			AFTER CONMITTION OF WELLS WITHIN 30 DAYS AFTER CONMITTION OF WELL LACT OF P. A. 1858 1 19
*	30		Permit No. 27159. Permit No
į		x	Owner or Overson Mathkenin Bonso Indated Osa Oceans Madlase, Sh
			Addison Cos Moodbartd Avenue - Detroit, Michigan 48226
`~	LICARE WELL	NATIONAL STATE OF THE STATE OF	rell It Maddein
<b>あ</b> 二、			Township Evert County Georgia
. L	oretica SE NI SD	1	K.B. 1160 Top 1775 Penger 8W Flevering GRN 11165.5
	<u> </u>		with time and 200

OIL OR GAS ZONES KHIFF ZOXES

Type of well. Dry Role latel depth. 1025 (ST) .... Completed in ... Roed City, Formation ...

On Hing control on Michigan, Consolidated, San Condilient, One Mondward Averse .- Detroit, Michigan.

#### CASING AND CEHENTING

#### STEEL LINES RUN

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Site	Weint Set	CENTRE	Wit, Policis	PLIN AT	Consteres to	PUN BY	
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0010 (200 3/19/68

R.O. Ankarberg

BIVE COMPLETE FORMATION RECORD ON REVERSE SIDE

(Subait in Duplicate)

### 30-178-87 Evert Tup.; (Onceols Co.)

#1 Maddern

Mightgan Concolidated Gas Company

Permit: #27159

Drilling Contractor: Mishigaa Consolidated Gas Company (Rig #1)

Location: SE NV SE Section 33-174-6W

940' from North line and 930' from West line of Quarter Section

1160 K.B. 13.57 R.F. 1145.5 ftst. Elevation:

Record By: Gomion Bishee from rig samples and driller's log

### Driller's Log

0 ~ 75	fleistoceie: Clay	
75- 252	- Drift, clay, with san	d streaks .
252 - 565	Clay and Gravel	
565- 592	"Shale, gray	
	PERMIAN:	
	_Red Beds:	
592 - 625		1 1 1 1 1
592 - 625 625 - 645	Red clay and gypsum Idmestone, shells and	grypstun his me
	"MISSISSIPPIAN:	
	Saginay Series:	

Clay and sand

Sample	Description:	
790.=	<b>8</b> 00	Shale, redaksn brown, atlaky, hand and gravel contamination
800 <b>-</b>	85.0	Shale, reddish brown, pileshie, soft
820	- 820	Shale as shove; Clay, gray
820 -	830	Shale 60% reddish as above, Handatone 40% gray, 0.1 to 0.2 MM
~-		grain size, subrounded, medium cemented with dolomite, well
		sorted
830 -	840	Free sand grains 80%, and town places of Sandatone, frosted,
_		U.2 to 0.4 MM grain size, upbrounded, nample looks gray;
		Chale 201 dark gray
840=	850	Shale 60% dark gray; Describe 10% dark brown, microcrystalline
	,	trace; Sandstone 30% gray, 0.1 MM grate size, subrounded-
		well comented with doloutin, white
850 =	850	Smle, dark gray; Sandatonn, off white, 0.1 to 0.25 MM grain
		- size, fair sorting, subrounded, poorly comented; Sandatone
		seems to be interhedded with Bhale, gray and Siltatone, gray
860 -	870	As above, slight increase flandations
b70 -	900	Sandstone, off walte, O.1 to 0.2 MM grain rize, aubangular, well
•		sorted, fair permited with dolosite, Shale, trace, gray
900 -	915	Sandstone, off white and free aand grains, 0.1 to 0.3 MM grain
		size, subsquaded, this estanted with dolowite, medium sorted
915-	920	Shale 50% galay, will by: Still bettern 50% gray
920 -	-	Sandstone, of white 70%, O.k to 0.15 MM grain size, subargular,
	, –	well sorted, fair committed with lime; Shale 30% gray

٠ 🕶	Porma Sandatone:
930 - 950	Shale 50% black, hard; Sandshone 40% off white, 0.2 to 0.4 MM
	grain size, suproposed, poorly cemented with dolonite, poor
	sorting, porous; Dolomite 10% tan to brown, microcrystalline,
~=	sundy
950 960	Sandstone, off white, O.1 MM grain size, well sorted, subangular,
970 - 12700	well cemented with white delowite; Dolomite, trace, brown,
· ·	- very finesy sucrosite
Man Arma	
960 - 970	Sante, black
970 - 990	Shale, Cark gray; Dolomite, brack, brown, microcrystalline
990 <b>- 10</b> 00	Shale, light gray, head, silly
7000 - 7010	Shole as above; Dolomite 10% built to brown, microcrystalline.
1010 - 1100	Shale, dark gray; Dolomitel Trace, buff to brown, microcrystallin
1100 - 1150	Sucie, dark gray
· ·	
	MISSISSIPPIAN
_	Bayport Limestone:
1190 1200	Limestone, brown, microcrystalline, many included sand grains-
1200 - 1210	libestone, brown
1010 -1020	Limestone (0) brown; Sundstone 40% off white, 0.2 to 0.8 MM grain
	size, subangular, medium comented with lime, medium sorved
1,220 - 1230	Limestone, brown; Shale, gray; Sandstone, trace as above
	Michigan Serieg:
1230 - 1240	Shale 70% gray; Arrhydrite 30% white; Dolomite, trace, gray,
	microcrystalline
1240 - 1250	Shale, gray; Anhydrite 20% white
1250 -1300	Shale 75% groy; Anhydrite 20-25% white
	Shale, gray; Anhydrite 20-2% white and pink
1300 - 1350	
1350 - 1370	As above, increase Amhydrite, pink
*	
_	Triple Gypoum: 1366 (SJ)
1370 - 1380	Aminydrite, white
<b>1380 - 13</b> 90	Auhydrite 50% white; Shale 50% gray
1390 - 1395	Shale 70% gray; Auhydrite 30% white
1395 - 1400	Shale 80% gray; Anhydrite 20% white
1400 - 1410	Shale 60% gray; Amphitite 40% white
1410 - 1415	Shale 75% gray; Amhydulte 25% white
1415 - 1427	Shale 85% gray; Amhydrite 15% white
1420 - 1425	Shale 90% gray; Amphrite 10% white
1425 - 1430	Shule 75% gray; Anhydrite 25% white
1430 - 1435	Smale 65% gray; Anhydrite 15% white; Dolomite 20% brown,
	microcrystalline
1435 - 1440	Shale 80% gray; Dolomite, trace as above; Anhydrite 20% white
	;
	Brown Limestone: 1440 (SJ)
1440 - 1445	Anhydrite 80% white; Shale, trace, gray; Limestone 20% brown,
	microcrystallins
1445 - 1450	Dolomite 85% brown, finely sucrosic; Anhydrite 15% white;
±447 = ±470	Shale, trace, gray
1400 -16cc	
1450 1455	Dolorite, brown as above; Arhydrite, trace, white; Shale,
alub scales	trace, gray
1455 - 1460	Dolomite 80% brown as allown; Shale 20% gray
1460 - 1465	Dolonite 70% brown; Shale 30% pray
1465 - 1470	Shale 80% gray; Polonite 20% brown, microcrystalline;
	_ Anhydrite, trees, white

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#1 Maddern
 Page three
 1470 -- 3475
                     Shale, gray; Labyarite 20% white
 1475 -- 1430
                     Simila 80% gray; Siltstone 20% gray; Anhydrite, trace, white
 1480 - 1485
                     Souldtone 40% off white, 0119 to 0.4 MM grain size, migdlar,
                        poorly sorted, fair cemented with lime; Shale 60% gray
 1425 - 1490
                     Sundatore 50% as above; Shale 50% gray
1490 - 1500
                     No Samples
1500 - 1505
                     Shale 70% gray; Arbytrice 30% white
1505 - 1510
                     Shale 90% gray; Aubydrite 10% white
1510 - 1515
                     Anhydrite, white; Shale, trace, White
1515 - 1530
                     Shale 90% gray; Aphydrite 10% white
1530 - 1535
                     Anhydrite 50% white; Shale, 50% gray
1535 - 1563
                     Shale 60% gray; Achydeite 40% white; Dolomite, trace, brown,
                        microcrystalline
1540 - 1545
                     Sindstone 30% green, 0.15 to 0.2 MM grain size, subangular,
                        well cemented with dolomite, well sorted; Shale 50% gray;
                        Anhydrite 20% white; Dolonite, trace, brown, microcrystalline
                     Stray Sandstone: 1548 (SJ)
1545 - 1550
                     Sandstone 50% gray, 0.15 to 0.2 MM grain size, subangular, well
                        sorted, medium cemented with lime; Shale 50% dark gray
1550 - 1555
                    Sandstone at above
                    DSC #1: 1524-1556
                    Gas to surface 3 mins.
                    Flow Time:
                                 let 30 mins | 2nd 60 mins.
                                 โดย 60 เนื้อร
                    CIP Time:
                                                2nd 180 mins.
                                      FHMP 759.1
                    THE
                           739.1
                    ICIP
                            578
                                      FCIP 578
                           66.3 - 94.7
                    The
                    पश्य
                           94.7 - 90
                    Tool opened with good blow for 30 mins.
                    Int. Flow rotated dual CIP Valve for a 60 min. Int. CIP.
                    Reopened tool with good blow for 60 mins. Second Flow closel
                    dual CIP valve for 180 mins FCIP.
                    Recovered: 100' drilling fluid and 500 MCF gas
1555 - 1.560
                    Sandatone, gray as above
1560 - 1565
                    Shale, gray
1565 - 1580
                    Sandstone 60% gray: Shale 40% gray
1580 -- 1600
                    Sandatone, red, 0.15 to 0.25 MM grain size, subengular and
                       subrounded, fair cemented with dolomite, well sorted
1600 - 1615
                    Sandstone, red as above, mostly free sand grains
1615 - 1620
                    Sandstone as above, becoming sheley
1620 - 1625
                    Sandstone 60% as above; Shale 40% red, soft, plastic
1625 --1640
                    Shale, red, plantic; Some Sandstone, red
1640 - 1650
                    Shele, gray, plastic; come sand grains
1650 - 1660
                    As above
1660 ---1700
                    Sandstone, gray, 0.15 to 0.3 MM grain size, subangular and
                       subrounded, fair sorting, fair comented with dolomito
1700 -1715
                    As above
1715 - 1725
                    Free sand grains, grey and red, frosted, 0.15 to 0.3 MM grain
                       size. subangular
1725 - 1765
                    Free send grains as above, mostly reddish grains, 0.2 to 0.5 MM
                       size, subangular
1765 - 1785
                    Free sand grains, red, silty, 0.1 MM grain size, subangular
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TVISION - BOX 30028 - CANSILKS EN

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' ∦1. Maddern
 Page four
 1785 - 1790
                     Free 40% aand gredus on above; Free send 20% grains, gray,
                       - coarse, subsuguler; Shale 40% gray
1790 \times 1795
                     Thre sand genden top, red, fine grained; Free sand grains 10%,
                     - coarse, subsnamber; Shalo 30% gray
1795 - 1819
                     Free sand genius 80%, red, fine grained; Free sand grains 20%,
                        cearse, subangule:
1815 - 1835
                     Sandstone 70% reddith, silty, very fine grained; Shale 30%
                        reddiah, allice
1835 -- 1866
                     Chale, gray, medium hard :
1945 - 1870
                     Sendatone, redd1.h, ellty, very fine grained, limey, edcaceous
1870 - 2100
                     Seals 90% gray; Litrectone 10% brown, microcrystalline
                     duals 90% gray; Dolorate 10-30% gray and brown, microcrystalline
2100 4-2030
                     Shale 70% gray; Dodomite 30% trown, limey, microcrystalline,
2230 - 2250
2240 -- 2270
                     State 804 (ruly) Dollandte 206 an above
2270 - 2350
                     busic 90% grey; Dolerates 110% an above
                     State 80% gray; Dolerite 20% byown, microcrystalline
2350 - 2361
                     Shale 90% gray; Welleribe 10% brown, microcrystalline
2360 - 2650
                     Sumbury:
                     Shale 50% black, hard; Limestone 20% cream, microcrystalline;
2650 - 2660.
                        Shale 30% gray
2650 -2670
                     Scale 60% black; Licestone 30% cream; Shale 10% gray
2570 - 2700
                     As above, found frommer
                     Chale 60% black, harry Limestone 20% cream to gray, micro-
۱۱۲<u>۶ یب</u> 2700
                        crystalline; Shale 20% gray
2710 - 2730
                     Sinte 70% black; Limestone 30% as above
2730 - 2740
                     Shule, black, hard
                    DEVONIAN:
                    Ellsworth:
2740 - 2750
                    Shale 60% black; Shale 40% gray green, hard
                     Shale 70% gray green; Shale 30% light brown
2750 - 2800
2800 - 2870
                    Shale, gray green and some light brown
2870 - 2900
                    As above, allight increase Shule, light brown
2900 - 2940
                    Shale 50% gray green; Shale 50% light brown
2940 - 2950
                    Unale 60% light brown; Shale 40% gray green
2950 - 3000
                    Shale 80% light brown; Shale 20% gray-green
3000 - 3020
                    Shale 90% light brown; thale 10% gray green
3020 - 3165
                    Shale, dark brown, blacktsh, hard
3165 - 3170
                    Himestone 30% brown, microcrystalline; Shale 20% dark brown
                       as above; Idmestone, trace, cream, microcrystalline
3170 - 3175
                    Shale 70% dark brown; Limestone 30% brown as above
3175 - 31%
                    Limestone 60% brown as above; Shale, dark brown
                    Limestone 50% brown as above; Shale 20% dark brown
3180 - 3185
3185 - 3190
                    Shale 80% dark brown; Limestone 20% brown, as above
3190 - 3200
                    As above
3200 - 3210
                    Shale 90% dark brown; Limestone 10% as above
3210 - 3275
                    Shale, dark brown
                    Traverse Formation: 3250 (61)
3275 ~ 3285
                    Shale, dark brown (more of a gray color); Shale, trace, gray,
                       limey; Limestone, trade, white, microcrystalline
```

是是我是她是什么一个多是是的的。 计图像 中国的一种

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#1 Madlern
 Page five
                     Minestone, gray-brown, midrochystalline; Shale, gray brown, limey
 3285 - 3295
 3295 - 3305
                     Limstone, brown, microcrystalline, shaley
                     Proverse Linestons: 3304 (SJ)
                     Idmentone, brown, very fibely sucrosic to microcrystalline
3305 - 3310
                     30 man. Circulated Sempla at 3310: :
                     limentone, crown, finaly sucrosic
                     Limestone, brown, sucrosid
 3310 - 3315
 3315 - 3320
                     ldrestone, gray-brown, sucrosto
3320 - 3323
                     Limestono, brown, su mosic
 5325 - 3330
                     Idensitione, brown, sucrosic; Shale, traca, grayish
                     30 min. Cimpulated Sample at 3330:
                     Lineshone, brown, sucressic; Weale 30% grayish
                     limentone 40% black, microcrystalline; Shale 40% gray brown;
3330 - 3335
                        Limestone 20% brown, sucrosic
 3335 - 3340
                     Idensitine, off white, microcrystalline, fragmental
                     Limestone, off white and buff, fragmental, sucrosic, cherty
 3340 - 3345
                     Linestone, buff to excem, fragmental
3345 - 3360
3360 - 3375
                     Idmentone, buff to brown, sucrosic
 3375 - 3410
                     Limescone, buff to brown, sucrosic
                     Limestone, tan to brown, some buff to off white, sucrosic
 3410 - 3425
                     Idrectore, tan to brown, sucrosic
3425 - 3440
                     Limestone, off white, sucrosic
3440 - 3455
                     Limestone 80% off white, sucronic; Limestone 20% creem to buff
3455 - 3460
3460 - 3490
                     limestone, built to ten, sucrosic
3490 --3535
                     Limestone, brown, sucrosid
                     Limestone 70% brown, sucrosic; Limestone 30% buff to tan
3535 - 3545
3545 - 3650
                     Limestone, light brown, sucrosic: Limestone, trace, off white
                      .. to buff
3650 - 3690
                     Limestone 50% dark brown to black, microcrystalline; Limestone
                     - 50% tan to brown, sucrosic
                    Limestone 60% off white, sucrosic; Limestone 40% black, micro-
3690 - 3700
                        crystallina
                     Limestone 70% buff to tan, sucrosic; Limestone 20% black,
3700 - 3710
                        microcrystalline; Shale 10% gray
3710 -- 3740
                    As above, darker color
3740 - 3750
                     As above plus Shale, gray -
                    Limestone, brown, finely sucrosic; Limestone, trace, off
3750 - 3840
                       white, sucrosia
                    Bell Shale: 3834 (SJ)
3840 - 3850
                    Limestone 50% as above; Shale 50% gray
3850 -- 3875
                    As above, quite shaley
3875 - 3895
                    Shale, gray
                    Dundee: 3800 (SJ)
                    Circulated Sample at 3896;
                    Limestone, off white to tan to brown m tiled, fragmental,
                        finely sucrosic, fossiliferous; Shale, gray
3895 - 3900
                    Limestone as above; Shale, guay
3900 -~3910
                    Limestone as above
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संस्थान स्था अवस्था । जा के ते के विकास के किया के किया के किया के किया के किया के किया के किया के किया के किया

HI WELL STORY

# \* #1 Maddorn Pago six

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3910	<b>3</b> 96)	Timestone so theve, butif to provin mottled	
3960	± <b>3</b> 970	Reed City Annyarite: 3993 (81) Linestone 60% or above; Dollandte 40% buff to gray, finely sucrouse	, ,-
		Reed City Dolamite: 3968 (E)	!
•	<b>≈ 3</b> 975	Dolomite, dank brown, sucround; Dolomite, gray, microcrystalling to finely sucrosis; Aribyarite, trace, white?	ne
- ,	<b>3</b> 980	bolomite, brown, finely quaronic :	
	<b>- 3</b> 9(≒) <b>- 3</b> 950	As above; Annydrite, trade, white? Dolomite, haven, sucrosid; Chart, trace, white; Anhydrite,	
need	900	trace, white?	
	- 3995 - 4000	Dolomite, cream, dense, tight have been a common tight have been bolomite, than donse, tight	· ·
	£ 4025	Delegate, he shove, track Delegate, brown to dark brown, miero-	• .
4025	×-4030	Dolomite, brown to dark brown, fine to microcrystalline, tight	
	_		٠.
	-TOTAL DEPTH TOTAL DEPTH		
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Proces No. 2	1152	Level 1	) i		Determine		24 . 19 . 68
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Rall Name.				Location			•
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Trees of Well.	.Prey Hole	ARINE ALLEMANT O	E or unkl	. fotal Outell. 4925. AV	formation	Reed Otty.	<b></b>
				Data Plugging Cooplete			•
			*	plugging legent. Ion.			
				f			
Name of Depai	rbuent represen	tative who sutho	maed or supervis	ed pluggiogeRuan	oll Miles		*********
CASING	MERL SUT	NAME OF THE BEST O	Sint of Rippto	BRIDGES OR P		DEP TOI PLACED	NUMBER SACK 6
1.5/8 <sup>6</sup>	917,1	ah daga panggangan . U W ibi sa ay panda		The second secon	mented	1,0301	35
	handarian record on a fee	to the same plantage of the second state of the same against		r vynami sad kasad badan kalasting a palamina		9001	35 20
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		rease with the design pulses to \$1.00 designs on a superior of the state of the sta		and the second s	(U.S	E PEVEASE SIDE	IF HEEDED)
Were 'pola, t		etc., lost or le	eft in the hole be	fore or during plugging	No1		:
			apademente) il ve paljuli il anticombinata discon-			·	estinik hjeghistocyterosom e
			or set bridge pl eant, Mohdes	ngeTob 11 an	), give neme and o	eddress	
	~-	***		mer or Operator? No	II an add	a was and ad	drana
ate off anti-	bindled by a co	·	COL DESTAL EDG. (NA	net of operator, 110			
Poprasantativ	ee of Owner, Op	erstor, Company,	or Contractor wh	o witnessed plagging	Chester Lower	Υ	
CERTIFICATE:				· · · · · · •			
elete that I	O Ankarber as suthorized b ction, and that	y said Orner or the facts state	Operator to make d herein are true	Minhight Conso	lidated Gre C his report was p o the best of my	di mony prepared under thouledge.	(Consumy), my supert(-
12	Land in	2 / 12 /	Rood	City, Michigan	Trianita and Trianita and Trianita	Ivilline !	Supi
FIRST INSPECT		RE)	indentation in the same of the contract of the	(ADD 40 60)	And the Land of th		t ) <del>Trentalitee</del> at 1.5
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	FARRIT MO.	FUTEATER	15.01 10 1910 NOF 1 80.	TOWNSHIE	COUNTY
	27159	litch. Cons. Gas	3 Co. Maddern VI	Evert	Osocia
	Location	evoles. Moving in	cotory. Fits partly dug.	· no mat materials	
• ;	location	14 made but too ]	ate to correct problem. Pit	e ore on low and as	to how this
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•			and the second of the second o		
,	mre Feb.	6 68	FIELD ACTIVITY REPORT	Page 1	
	PERMIT M).	OPEPATOR	JASE OF MILL HORE & NO.	FIRED HAME OR TYPE WELL DE	TE WILL TOCAL
	27159	M. C. O. C.	Yaddern #1.	Evart	
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	ocian, Zege	Committee 5921.	Dulg. 8801. No surface pig	pe set yet. still look	ing for a silene
	was sur	raca brbe so s bi	ressure test can be made on	oment job	a brank
			;		
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			HELD ACTIVITY PEPORT		
	DATE FED	-22 10 <u>68</u>		FIELD HASE OF TYPE WELL Dr.	lgWildcat
	PERMIT NO.	CHATOR	1 PAST OR WELL NAME & NO.	TOWNSHIP	COUNTY
	271.59	M.C.C.C.	Maddern #1	Evart.	Alceo a O
	DATE FO	b. 14 19 63	FIELD ACTIVITY REPORT		
	PERMIT NO.	OPFFATOR	LEASE OR VELL HAVE & NO.	FIELD HAVE OR TYPE UFLL D	rlcWildnet
	27159	M.C.G.C.	Maddern #1	TOWNSHIP	COUNTY
				Evert	Osceola
	arrb Shi	3566; Br. Is. 14	40; Stray 1548: PID 1556: auged 477,000 cm. Ct. Have	Punnan	
<u>.</u>	gas_to s	arrace 3 mins., g	auged 477,000 cu. ft. Have	tool ship to a D.S.T. 152	4-1556 Rec.
	· <b>-</b>			soor ande th now yor h	G.I.P.
					en
	-		•		<u> </u>
	MTE Feb.	15 19 68	FELO ACTIVITY REPORT		
		OFERATOR		TTO D. Maria	_
	27159	M.C.C.C.	LEASE OR WELL NAME & NO.	PTELD NAME OR TYPE WELL DE	lg-Wildcat
	Chart Nat	The second secon	Keddarn #1	TOWNSHIP	COUNTY
•	thoras 15th	8' - DST 1521-155	6'. Rec. gas to surface in cond flow. Flow through 5/8	LEVAPE	Osceola
•	fluid in a	to 500,000 on se	6'. Rec. gas to surface in cond flow. Flow through 5/8 7591; ICIP 578#; IFP 66 to 9 and City. Drlg. now at 1900.	3 mins. gauged 350 00	
	759# Thes	THE THIRD	cond flow. Flow through 5/8 7591; ICIP 578#; IFP 66 to 9 and City. Drlg. now at 1800	choke. Also recover	on litst flow
	2774	aread to Re	ed City. Drig. now at 7000	147: FFP 94 to 96#: FC	TP 5284 2504
		*-	30 10001	•	- 110kt stille
CONG	7231				
~~HD	1431			•	
	and the second s		11	MILES WILES	- 1
	The shove i	nformation je implete	The state of the s		
		3/19/68	R	O. Ankarous	The war with the same
	0+1+X1 × C	~ <del>((::::(::::::::::::::::::::::::::::</del>	Tillenan	illing.Supt	
		Atve	COMPLETE FORMATION REGORD OR REV	FASE SIDE (Sub-co	(a_Duplicate)

PELO ACTIVITY REALIST

CHARLES OF A CALL STREET OF THE CONTROL OF THE CONTROL OF THE CALL

THOUGHT YTTUITOR OFFICER

PIPLO HANG OR THER WYU. DELC. THE LEGISLATION TO LERIST OF WALL NAME & SO. FIXELT MI. TOWNSHIE Evart Cacuola Each, Cons. Fis Co.

Drig. 31121. Still in Antrim.

HELD ACTIVITY REPORT

FIRED HAVE ON TYPE WELL Dr. Ing. Wildest CETTLA TOR PERMIT NO. COUNTY GEAST OR VELL BAHS & HO. TOWNSHIP Mich. Conn. Gas Co Madorn #1 Evert A.CoepeO

3470 DF = 3471 SIM.

**54 3 6** 1988

DELD ACTIVITY REPORT

PIELO HAME OR TYPY UPLL Driven Wilder PERMIT NO. LEASE OF WILL HAVE & MI. OFFEATOR TORPISHER 27159 Meddern #1 Mich. Conc. Gas Co. Syntit Oscoole

Trv. 18 13331; Bell 3850; Dd. 3891 Drlg. 2910; To drill ahead to Reed City & tost. If no cil production is encountered will plug well to surface. Not to save gas encountered in stray.

PELO ACTIVITY REPORTS . MTR - Feb. 23 19 69

FEB 27 1968

Drlg.-Wildoat

JULY BATE OF TYPE HELL

LEASE OR VELL HAVE & M). TOWNSHIP Mich. Cons. Gas Co Vaddenn 12 Trip :- Eyr. 1360; Br. 1s. 1436; Stray 15/2; Aut. 3040; Trv. fm. 3256; Trv. ls. 3304; Bell 3834; Dd. 3790; Anhyd. 3950(1); Reed City 3988(1). TD 4030. 4030 DP = 4025 SJ). D & A. Completed 2-22-68. To plug 2-23-69 by running drill pipe to T.D. & spot 35 sax of cement on bottom. Pull drill pipe to 1600' and spot 35 sex of cement thru Stray. Pull drill pipe to base of 8-5/8" surrans pipe and spot /0 sax of coment. 8-5/8" to be abandoned with the well. Out off 3' below ground level & cap with 5 sax cement, however, while running in drill pipe hele coved in freezing drill pipe. Pipe stuck at 1865, cannot pull. Broke circulation OK & are now mixing good mad to a thempt to free pipe & continue plugging well. Completed well using water for drilling fluid. CONS 7231

The whose information is complete and noticet.

R.O. Inkarberg Por 1 ( 3/19/68 Title .... Drilling Suptain.

CA45, 7210

PENHIT NO.

BIVE COMPLETE TOTALTION RECORD ON REVERSE SIDE

(Subutt in Duplicate)

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PENNT NO. (I FRATOR			THURSHIP	COUNTY
27159   Mich. Coms. Ges	Co. MadJorn 3	annua a ab bus hetstaat användin musik muse atunnin siiki	Evart	Osceole
Trip, gvp. 1766; Br. 1s. 143	36: Stray 1 <i>548</i> ; Ant.	3040; Trv. (m. 3256	or Bry. In. 33	04; Boll (
3934; Dd. 37 3; anhyd. 3950(	[ <b>?</b> ]; Erad G1ty 39/8(1	7). m 40301. 4030	) DP 🛎 4025 Sj	). D&A.
Completed 2-22-63. To plug	2-23-58 by running c	irill pipe to T.D. d	e anot 35 cax	of cemonic
on bottom. Pull drill pipe	to 16001 and cost 35	5 sax of comont thru	stray. Pull	drill pipo
to base of 8-5/8" surface pi	ipo and spot 20 ax c	of demont. 8-5/8" t	o <b>be aba</b> ndone	d with
the well. Cut off 3' tolow	grown level & cap w	はいち sax coment, b	iomever, simila	running
in drill stpo hole caved in	freezing crill pipa.	. Pipo atuck at 186	5, cannot pul	l. Broke
circulation OR & are now min	ding good and to a bt	tempt to tree pipe of	continue più	gging well.
Completed well using water I			Wiles	
7231 -				

CONS 7231 -

pare Feb. 27 . 63	FILLD ACTIVITY REPORT	FIELD HAME OR TYPE WELL.	DrlgWildeat
PERMIT NO. GULLATOR	LOSE OR WELL NOTE & HO.	TO MEHID	COUNTY
271.59   1.0.0.0	Maddern 1 - Continued	[ Evart.	Osceola
	long 2.5 no) Chronisted mid		
	tan in Ballillarkon þackorj & já		
	onditioned hole, with 7-7/8" bi		
Jars & connected on to dril	il collars. Firm dropped down	hole 4. Top of	pipa 1586 .
Removed packer & reran again	in & recovered all drill colla	rs. Laid down all	drill collars
	. Used a 7-1/6" bit with wate		
	irill plips to 18001 & spotted		hrú s <b>tray, pulle</b> d
drill pipe to base of 3 5/3	3" surface paro (Contid)	SPECTOR Wiles	
7231	1	11 (10 00)	

PERHIT NO. 10771ATOR LEASE OF MILE NAME I NO. 17MINSTER COUNTY
27159 M.C. J.C. M.C. Widdern #1 Evert Cecols

Mell D & L on 3-22-63. TD 4036'. When running in drill pipe to plug pipe stuck at 1865', could not a ve. (1 at 30 drill collars in hele). Completed well with salt water. Broke circulation the so mixed and using 32 sex of salt fel + 2 sax of mylojel. Mud did not free pipe. Spotted 110 gals, of 3 19 chemical + 20 bel, of oil. Pipe still froze.—Continued spotting oil around drill collars but pipe still froze. On 2-24-68 continued spotting oil around drill collars and working pipe, pipe bagum to work free but would not travel.

2/25/68 Tipe still stuck. End McCullough Tool Co. check for free point, found drill pipe free to 531'. Cleaned mud pite again & mixe' a new pit of mud using 40 cax mylogel + other cons 7231 \_\_chemicals. Contid.

PEPRIT NO. | COPERATOR | LEASE OF MELL NAME & NO. | PROMISE | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUNTY | COUN

and spotted 20 sax. 8" abandoned with the wall. Cut off 3" below ground level and apped with 5 sax coment. To move rotary to Read City for next well.

NOTE: Accommanded Frank Vining to hig kapids checking on a complaint concerning a brine loss—at a brine well operated by Mecosta County noutheast of Big Rapids. Brine loss repaired and brine tanks in good order. No problem when checking.

nave Hay 2		FELD ACTIVITY REPORT	FIELD HAME OR TIPE VELV	MAY 24 1968 Plugged-Wildon
FERMIT NO.	OPERATOR	LEASE ON ME'E WIME " NO.	TOUNSHIP	COUNTY
27159	Mich. Cons. Gas	Maddern 1	Evert	Oscaola

Plugged to surface. Callar & pits filled and leveled. Some debris on location, however will remove soon. OK to approve.

DEPARTMENT OF CONFERMINISIN SUPERMISON OF WELLS !!

A CONTRACTOR	and the second of the second		-0'NL15NA 4695	2 2 20 14		100	. 5.4. 15.4. × 125.4.4.				1	*	
277			TERMIT		- A.D	10 P.	BANDOL		TOTAL RA	Haldon	4	د د المدينونون	
SEX.L. PANE		gen Consoll	Birthel Open Co	ialivia.	•,		1 1 1 1 1 1 1 1 1 1	the serve is any other department of		( Vert	ko.		,
	Medda	<b>173</b>	· · · · · · · · · · · · · · · · · · ·				1	าเฟสรชได้			olya C	- andrewsky deca	
D)		Em marine	. An ender of the co		7	1718	1	<b>v</b> *rt		Ones Projec	e La	د ت و محودات	
	Dry II		ger and the state of the state				Peb.		1968		: :	ول ماها د سامت	Ņ
LAST PROBLECT	1108 (Amount				ert,	- we a k a c o o o b	Testing out and service	WATE	range (management)	sa Erceii	<b>A</b> • •	GAN O STARE	
<b>\$</b>		Toring & Al	Jack Service	FAI	: 		e tell mar gabet er menne er	and the same of the section of the s		reb.		19	٤
3	darry.U		. 14 - 115 -			. ( 	المراجد المراجدة	in a superior of the superior		Feb.	22	10	
g. Zungerber	Hickigar	r Commodida	ted Oas Com	PRINTY & Louis		en en en en en en en				. ,	· · · · · · · · · · · · · · · · · · ·	3. 4. 11	
	lised C11	ly, Mehisa	n 49627			; ;; ;; ;; ;; ;; <del>;</del> ;	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1					i ga saarang gagaya ga saarang gagaya	
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6 3/85.	YFT	503 + 2 <b>0</b>	PLEFORATION	ង្គាត	F	1157		Antrin Try. I	30% L 32%	_	· · ·	4030	
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And the second s			F STANDARD TO SERVE AND A SERVER AND ASSESSMENT OF SERVER ASSESSMENT OF		EXP	7 . 4	6	Dundae Anhyd.	<b>3</b> 950	<b>י</b>			
		. =		Barre		1 4/		RA. Cv.	4. 4				

has drill pipe to total depth and spot 35 sacks of enumb on boltom. Fall drill pipe to 1600' and spot 35 sacks of commit through Stray. Pull drill pipe to base of the 8 5/8" surface pige and spot 20 sacks of coment. Pall remainder of drill pipe.

\$ 5/8" surface plue to be abandoned with the well. Out pipe off 3" below ground level and exp with 3 sacks of casent.

HIGHIAAN HEFAN HERATION CONSERVATION

PLEASE FILE IN TRIPLICATE

DIVISION - BOX 30028 - 1/0/5116, 611 489/09

MAR 1.1 1923

# REQUEST FOR TRANSFER OF PERMIT

	Reed	City	, Michigan,	Peb. 23 , 19 7	<u>.</u>
Supervisor of Wells Lanving, Michigan			;		
Please transfer Fermit No. 27150	teamed to _	Etchigen	Consolidated	I das Co.	) )
for H. Maddern	No.	1 locate	ed in the SE X	NW & SB & section	`
30 , T. 17 , R. SW , Evar		į			: .
		: '		1	
are being assumed by this proposed opera-	tor.	1			
	OPERATOR	Michigan C	omsolidated	Gas Co.	
	Bv	& avo	iry		•
NOTE: NO-PERMIT SHALL BE TRANSFERRED WHE NOT COMPLIED WITH THE PROVISIONS OF ACT ACTS OF MICHIGAN, 1937, AS AMENDED, OR T AUTHORIZED REPRESENTATIVE.	IN AN OWNER OF	NEH AUTHORIZED TS OF MICHIBAN,	REPRESENTATIVE H	S HOT COMPLYING OR M. D. OR ACT 326. PUBL	łĈ
SMINANTER MELALVINIALITES	Rend			Pan 99	· ·
Supervisor of Wells	W TOU		, Michigan,	Feb 23 . 19 7	
Eadlou, Inc.	i han necuir	ad the wall det	: Hed under Persit	No. 27-59	
ecoulains operator and is assuming full responsibility for sions and orders issued by the Supervisor ACQUIRING OPERATOR Madlou,	its operation of Smills. A	and abrindonmen	: t in conformity :	with the law, regula	
Box 176	Rend C	ity, Nich.			
STREET AND NO.	BY (	116	Buck	puo	,÷.
TYPE OF WELL . LUGOLID TORY HOLE	Appendicate and annual Confession				
· · · · · · · · · · · · · · · · · · ·		ER APPROVED	MAR 1 2 1971	Luc	
	TRANSFER AT	PROTEIN BY	Single State of th	Soft to the the second	

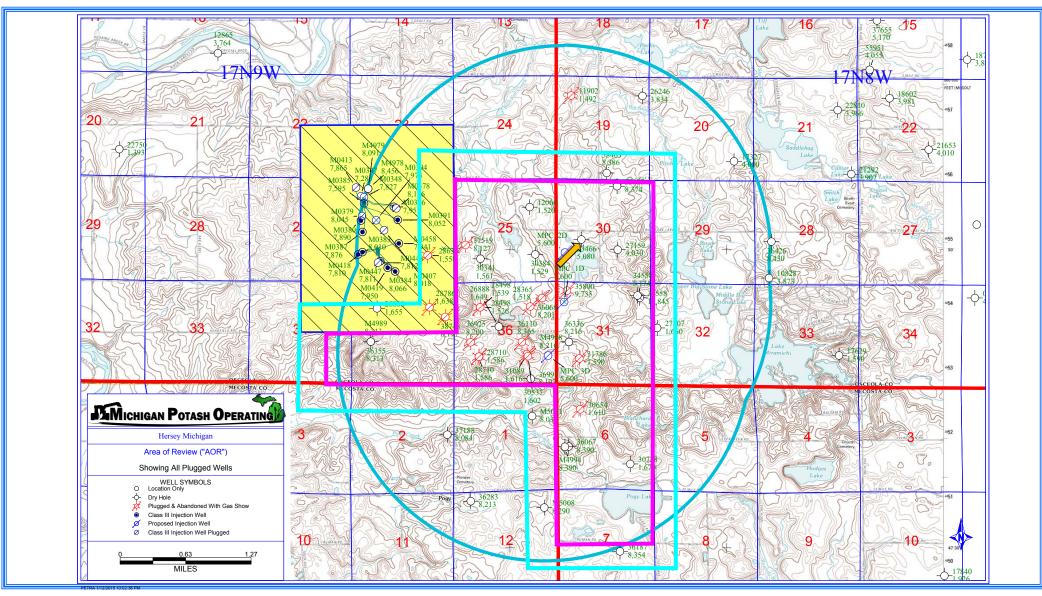


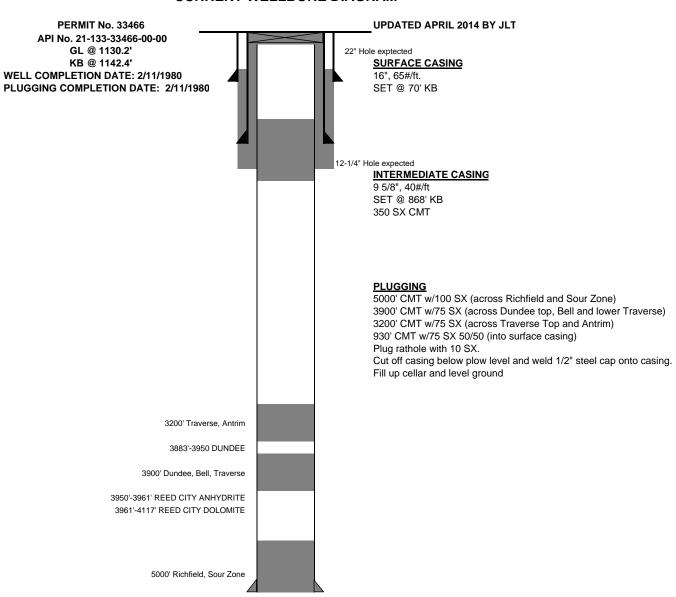
Figure B4. Map showing all plugged wells, shallow (that do not penetrate any confining horizon) or deep (that penetrate confining horzion) within the area of review. Total Depths are listed. There are several shallow Michigan Stray wells that do not penetrate the injection or confining horizon.



#### **MANEY 1-30**

# NW NE SW Sec 30 T17N R8W OSCEOLA COUNTY, MI

#### **CURRENT WELLBORE DIAGRAM**



TD @ 5080' KB

#### **MANEY 1-30 WELL HISTORY**

DATE **DESCRIPTION** 1/26/1980 SPUD. 2/9/1980 DRILLING COMPLETED. 16" SET AT 70' 9 5/8" SET AT 868'; 350 SX CMT 2/11/1980 PLUGGING START DATE 5000' CMT w/100 SX (across Richfield and Sour Zone) 3900' CMT w/75 SX (across Dundee top, Bell and lower Traverse) 3200' CMT w/75 SX (across Traverse Top and Antrim) 930' CMT w/75 SX 50/50 (into surface casing) Plug rathole with 10 SX. Cut off casing below plow level and weld 1/2" steel cap onto casing. Fill up cellar and level ground

PLUGGING COMPLETED

2/11/1980

# APPLICATION FOR PERMIT TO DRILL A WELL FOR OIL, GAS, BRINE DISPOSAL, HYDROCARBON STORAGE OR FOR SECONDARY RECOVERY

Under Authority of Act 61, P.A. of 1939, As Amended.

Completion unit will be used to complete well if productive.

MAIL TO:

R 7207 Rev. 12/77

## STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES **GEOLOGICAL SURVEY DIVISION** Box 30028, Lansing, Michigan 48909

	See Reverse Side Before F	illing Out This A	pplication	
LOCATE MELL AND OUTLING UNIT	1. Application to drill a well	for: 2. D	ate	3. Fee enclosed
LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT – 640 ACRES	Oil		5/79	\$ 100.00
DIL	4. Applicant's name(s) as it is	<del></del>		100.00
<u> </u>	Dart Oil & Gas Cor			•
	5. Permanent address	poracion		6. Phone
		on Michigan	1,0051	517-676-2900
<u> </u>	7. Lease name (owner of min		400.74	8. Well No.
		erai rigiris;		i i
	Norman Maney		/1 sat/**	1 1-30
W	9. Surface owner			
	same			14 0
	10. Address			11. Phone
	Rt. #1, Evart, Mich	igan 49631		
	12. Drilling contractor			
	Provins Drilling Co.		<u></u>	
	13. Address			14. Phone
<u> </u>	600 West Pickard, N	It. Pleasant, I	Michigan 48858	
FOR DIRECTIONALLY DRILLED	15. Surface location		J	
HOLE SEE INSTRUCTIONS ON REVERSE SIDE.	NW % of NE	% of SW 9	4 Section 30	17N R 8W
HEVENSE SIDE.	16. Township		17. County	
	Evart		Osceola	
18. Locate well in two directions from nearest	lines of quarter section and unit	lines. (Surface locat	ion)	
Ft. From north (north-south)	Line of quarter section	860 <sub>F</sub>	t. From east	Line of quarter section
(north-south)			(east-west	
460 Ft. From north	Unit line	460	t. From <u>west</u>	Unit line
(north-south)	Omt me	· ·	(east-west	) one me
19. Kind of tools to be used (Cable, rotary, co	ombination) 20. Formation	in which well is to l	be completed	21. Intended depth of well
Rotary	Amherst	hurg		5250'
22. Program of casing, sealing, cementing and				7.2.0
Drill 12 %" hole and set approx	imataly 7601 8 5/911 2/	# K55 curface	e cacina	
Circulate cement to surface.	amatery 700 8 278 24	ar Kyy suitac	casing, 2	
Drill 7 7/8" hole to TD.				
	occine if madesation		MARKET PERMIT	-n-
Set 5 ½" 15.5# K55 production			HIERY COND.	• • •
B.O.P. series 900-3000# test	/ 1	<del>· ram.</del>		
series 900-3000# Res	an tube type.			

#### CASING IS NOT TO BE STRIPPED FROM THE HOLE AND NO CHANGE IS TO BE MADE IN THE PROGRAM OUTLINED ABOVE WITHOUT APPROVAL OF THE SUPERVISOR OF WELLS OR HIS AUTHORIZED REPRESENTATIVE

DRILLING, CASING, SEALING, NEAREST FIELD OFFICE. (See re	COMPLETING, PRODUCING, AND	PLUGGING OF WELLS. BEFO	PRE COMMENCING DRILLIN	G OPERATIONS, CONTACT TH
23. Send correspondence and permi	t to:		24	. Phone
Dart Oil & Gas Corpora	ation Attn: W.H. Vea	atch		517-676-2900
25. Address				
600 Dart Road, Mason,	Michigan 48854			_
	BLANK	26. Name of applicant's	agent (Print)	
Date Issued	Permit No.	W.H. Veatch	_	
1-9-80	33,466	27. Signature of agent	me	
FOR CASHIER'S	USE ONLY. DO NOT WRITE I	IN THIS SPACE	For Geological	Survey Use Only
0.30			1. White - Lansing	4. Goldenrod - Field
8:70 H 907; 13	(0.6)		2. Canary - Cashier	5. Green - Applicar

3. Blue - Field

# INSTRUCTIONS FOR PREPARING APPLICATION FOR PERMIT

- 1. Use form R-7207. (Five copies in set. Green will be returned when permit is issued.)
- 2. WELL LOCATION SURVEY. Use form R-7208. Submit five copies. (Surveyors plat may be substituted for form R-7208.) Submit supplemental information and maps it takes, streams, swamps, buildings, roads, powerlines, etc., are within one quarter mile of location.
- 3. ENVIRONMENTAL IMPACT ASSESSMENT. Use form R-7616 or equivalent. Submit five copies. (See instructions and guidelines furnished with forms.)
- 4. WELL ELEVATION. Furnish with well location survey or submit certification that elevation will be run and 'submitted within fourteen days after drilling commences.
- 5. SURETY BOND. Proper bond coverage must be submitted with application or must have been filed previously. (See General Rules for details.)
- 6. PERMIT FEE. Must accompany application for permit. (See statute for applicable fee.) (Make check payable to STATE OF MICHIGAN.)
- 7. PROGRAM OF CASING, SEALING, CEMENTING AND COMPLETING WELL (SECTION 22). Include the different hole sizes and depths to be drilled; casing sizes, weights, grades and lengths; amount and type of cement and additives if used. Indicate the type, weight and viscosities of drilling fluids to be used. List blowout control equipment to be used; give size, type, pressure ratings and order of assembly. Indicate intended well logging and completion program, auxiliary equipment to be used (i.e. sour gas), if any, and general information and remarks not covered by the above.

# IF THIS APPLICATION IS FOR A HOLE TO BE DIRECTIONALLY DRILLED, SUBMIT THE FOLLOWING SUPPLEMENTAL INFORMATION:

(Five copies required.)

- 1. Give geographical description of intended bottom hole location.
- 2. Give correct footage measurements of intended bottom hole focation from the NEAREST quarter section lines and from NEAREST unit lines.
- 3. Give RADIUS of intended bottom hole target area.
- 4. DIRECTIONAL DRILLING AND ENGINEERING PROGRAM. Include deviation kick-off points, degree of deviation intended, proposed depth and True Vertical Depth of the bottom hole. Specify the lateral distance and direction from the surface location to the proposed bottom hole location. Give name and address of the engineering company who will direct the deviation of the well bore and any general information and remarks not covered.

#### NOTICE: When drilling commences, the proper area field office MUST be notified!

#### FIELD OFFICES

Grayling	East Lansing	Mt. Pleasant	Imlay City		
P.O. Box 507, 49738 Phone (A/C 517) 348-6371	8562 East Stoll Rd., 48823	204 Court St., 48858	P.O. Box 218, 48444		
	Phone (A/C 517)	Phone (A/C 517)	Phone (A/C 313)		
	339-8638	773-9965	724-2015		

THE SUPERVISOR OF WELLS IS PROHIBITED BY LAW FROM ISSUING A DRILLING PERMIT TO ANY OWNER OR OPERATOR WHO IS IN VIOLATION OF ANY OF THE PROVISIONS OF ACT 61, P.A. 1939, AS AMENDED, OR ANY OF THE RULES OR ORDERS PROMULGATED THEREUNDER.

#### STATE OF MICHIGAN

### DEPARTMENT OF NATURAL RESOURCES

**5680** Νó

SUPERVISOR OF WELLS

#### PERMIT TO DRILL

For Auditing Only

#### (POST WHITE COPY OF PERMIT AT WELL LOCATION)

Permit No	33466	Issue Da	te January 9,	1980 Te	rmination Dat	te January 9	, 1981
	s hereby granted						
		600	Own Dart Road,	er	AODEA		
	, , , , , , , , , , , , , , , , , , ,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Addre	:8 <b>8</b>			
Lease Name	Norman Maney				Well Number	1-30	
Location	NV4 NEW SW4 S	ection 3	0, T.17N., F	R.8W., Evart	Twp., Osc	eola County	
Footages	460' from nor	th and c	bou from eas	it fille of c	uarter sec	CIUII	
	460' from nor	th and 4	60' from wes	t unit line	<u> </u>		
Type of Well 011		ind of	otary	Objective Formation An	herstburg	Intended Depth 52	50'
						-	
-	is issued subject ued by the Super	_				_	iremen <b>ts,</b>
					<i>7</i> )	or of well	S
				By.	Kancel.	1. Decta	an

### CASING AND SEALING REQUIREMENTS

Drill 12 %" hole and set approximately 760' 8 5/8" 24# K55 surface casing, circulate cement to surface.

Drill 7 7/8" hole to total depth.

Set 5 1/2" 15.5# K55 production casing if productive and adequately cement.

#### NOTICE

- IT IS FURTHER MADE A REQUIREMENT OF THIS PERMIT that the applicant give notice to the Public Utilities in accordance with Act 53, P.A. 1974 C.L. 460.701 to 460.718 and comply with each of the requirements of the act.
- DRILLING PERMIT ISSUED on the basis of the drilling, casing and sealing program as outlined on the application for permit and subject to requirements as set forth above. No change or alteration is to be made without the permission and approval of the Supervisor of Wells or his authorized representative.
- DRILLING OPERATIONS ARE NOT TO BE COMMENCED until all the well location requirements have been completed and the permit has been posted in a conspicuous place at the well site. The nearest field office of the Department of Natural Resources must be notified prior to the commencement of drilling. deepening, reworking, and plugging.

#### DEPARTMENT FIELD OFFICES

Region II, Roscommon Phone	517-275-5151	Region III, Lansing	517-322-1300
Cadillac Phone	616-775-9728	E. Lansing	517-339-8638
Gaylord Phone	517-732-3541	Imlay City	313-724-2015
Mt. Pleasant Phone	517-773-9965	Plainwell	616-685-6851
		Grand Rapids	616-456-5071

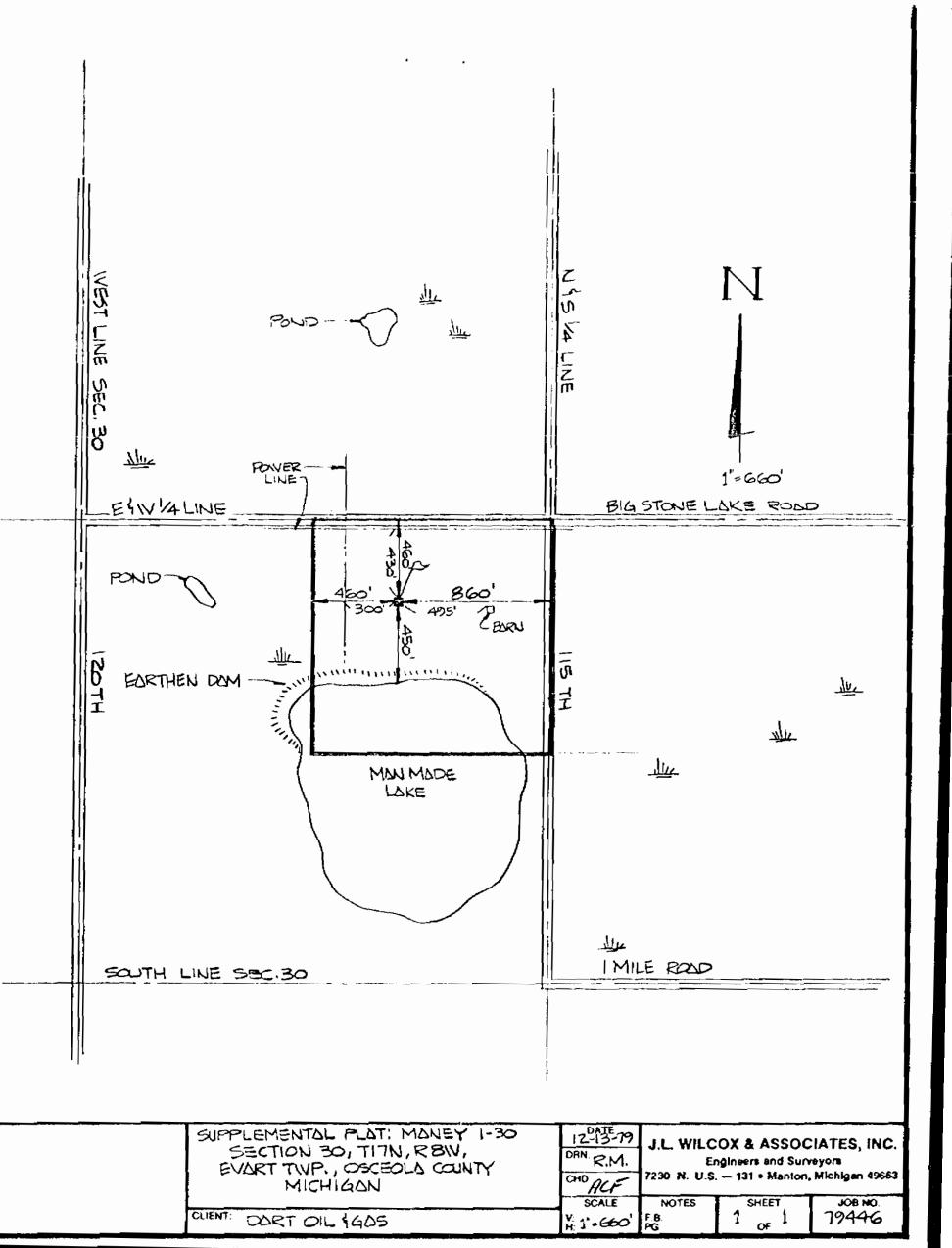


# STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES GEOLOGY DIVISION

# SURVEY RECORD OF WELL LOCATION

(Submit in quadruplicate with Application for Permit to Drill a Well for Oil or Gas, Brine Disposal, Secondary Recovery, or Gas or L.P.G. Storage)

	79446	Br	ine Disposa	I, Seconda	ary Reco	very, o	r Gas	or L.P.	G. Storage)		
LESSEE (	OMNERO	F LEASE RIGHTS	oil and G	AS CORPO	RATION						
I .		F MINERAL RIG				1 201				WE	ELL NO.
	Norman	Maney			(Maney	1-30)	) 				1-30
LOCATIO	N	NW ¼ OF	NE 3	4 OF	SW	¼ SE	CTION	30	<sub>T.</sub> 17N		<sub>r.</sub> 8W
TOWNSH						COUNTY	sceol	a			
	Evart								unit and and		anation on plat
PLA		(1 Mile Sq		SECTION	N	a d d a O d diii 2. Li q d	t left. ivide to north outline irectiones. ocation uarter 460 460 460 escribe oute if	Where he plat i half and the uns from n of wellsit it is not the is is from	drilling unit into an east had a south hal nit and local NEAREST quality in two directions and unit line North line (north-south)  North line (north-south)  North line (north-south)  West line (east-west)	crosses half and if (which ate the uarter so ctions fi nes is: e of Qui e of Qui e of uni ow or de cessible h a woo	escribe access od stake.
	(Sca	ale of Plat - 1 in	ich equals 132	0 ft.)							
5.	A. Loca structure. B. Loca surf. In an Edetailin prepara	PARATE PLA ate, identify, a ctures within ate, identify, ace water fea ENVIRONMEN ag plans for ation of an er	and show di 300 feet of and show d atures within ITAL IMPAC hazards pr	stances to the stake distances to 1320 feet T ASSESS evention a	; to all lal t of the SMENT c and eros	kes, str stake. describe sion co nt).	reams, e all s ontrol	swamp	es and sur	and 48	bungr Sgown
NAME OF	INDIVIDU	IAL WHO SURVE	red well sit Frederick		on, RLS		6 12-	14-79	Sur	<sub>e</sub> veyor	
ADDRESS	J. L. W	IILCOX & ASS	SOCIATES.	INC.	7230	North	US-13	11	Manton, M	ichiga	n 49663
ICER	TIFY TH	E ABOVE HALFO	DRMATION IS	COMPLETE	AND AC	CURAT	E TO T	HE BEST	OF MY KNOW	NLEDGE	AND BELIEF
SIGNATOR	E DESSEE	OR AUTHORIZE	D REPRESENT	ATIVE) ADDE	RESS (IF D	IFFEREN	IAHT THA	N LESSEE	,	DATE (MC	ONTH, DAY, YEAR)



PERMIT NUMBER

33466

DEEPENING PERMIT NUMBER

31A1	STATE OF MICHIGARY						
DEPARTMENT	OF NATURAL	RESOURCES					

LOG OF OIL, GAS, DISPOSAL OR STORAGE WELL (ACT 61) Submit in DUPLICATE W

Within 3	U Days	anter	weir	Completion	
FINAL	,				

NAME(S) & ADDRESS OF OWNER(S) SHOWN ON PERMIT

Dart Oil & Gas Corporation 600 Dart Road

Mason, Michigan 48854 NAME & ADDRESS OF DRILLING CONTRACTOR(S) Bigard Drilling Company

1315 N. Mission Road, P.O. Box 509

Mt. Pleasant, Michigan 48858

EASE NAME(S) & WELL NUMBER SHOWN ON PERMIT	DIRECTION	ALLY DRILLED
Maney #1-30	 YES 🗌	КЖои

SURFACE LOCATION TOWNSHIP RANGE TOWNSHIP NAME SECTION 8W Evart NW NE SW 30 17N

COUNTY NAME FOOTAGES (North/South) (East/West) Osceola 460 Ft. from North Ft. from, East \_Line of quarter section Line and

SUBSURFACE LOCATION SECTION TOWNSHIP TOWNSHIP NAME

FOOTAGES (North/South) (East/West) COUNTY NAME

J	_	Ft. from \	ine and Ft. from	Line of quarter section	!	
ı		DRILLING BEGUN	TOTAL DEPTH OF WELL	TYPE WELL		
Į	D	1/26/80	Dritter 5080 Log 5080	Dry Hole	ELEVA	TIONS
	Δ	DRILLING COMPLETED	FORMATION AT T.D.	FT. DRLD ROTARY TOOLS		R.F.
	T	2/9/80	Amherstburg	From 0 To 5080	1142.4	_
	۴	WELL COMPLETED	PRODUCING FORMATION(S)	FT. DRLD CABLE TOOLS	A.T.	Grd.
1	-	2/11/80	None	From To		1130.2

#### CASING, CASING LINERS AND CEMENTING

#### PERFORATIONS

SIZE	WHERE SET	CEMENT	Ft. Pulled		NUMBER	I INTERVAL PERFORATEU F	OPI	OPEN	
9 5/8	868	350 sxs			HOLES		YES	NO	

#### **GROSS PAY INTERVALS**

#### ALL OTHER OIL AND GAS SHOWS OBSERVED OR LOGGED

FORMATION	OIL OR GAS	FROM	то	FORMATION		OIL	}	WHERE OBSERVED (X)					
						ORGAS	DEPTH	Sam- ples	Odor	Pits	Mud Line	Gas Log	Fill Up
				Sour	Zone	Gas	464653		х			х	
<u> </u>		<u> </u>						ļ					

#### STIMULATION BY ACID OR FRACTURING

#### WATER FILL UP (F.U.) OR LOST CIRCULATION (L.C.) (X)

DATE	Interval Treated	Materials and amount used	FORMATION F.L		L.C.	DEPTH	AMOUNT			
				_						
			<u> </u>		!					
	1		ĮĮ	<u> </u>	I	ſ				

#### MECHANICAL LOGS, LIST EACH TYPE RUN

#### DEPTH CORRECTION DEVIATION SURVEY PLUGGED BACK

Brand	(x)	LOG TYPES	LOGGED INTERVALS	DEPTH	CORRECT'N	RUN AT	DEGREES	YES	NO	DEPTH
Schlumberger	X	GR-Cal/ONL-FDO	100-5078							
Birdwell		DLL - Micro	3000-5076							
9		BHC Sonic	3000-5076					L	L	·
€										

#### PRODUCTION TEST DATA

Oll - Rhielday	GRAVITY - OAPI	COMD Bbls/day	GAS - MCE/day	WATER - Bhis/day	H <sub>2</sub> \$ Grains/100 cu. ft.	B H P AND DEPTH	۱
Ort 00/3/409	Johavii i Aii	COND. Obisiday	CAS - MCHOUS	14771 - 00/3/1189	1125 - Orbins (00 ca. 7c.	D.H.F. PAND DEF 117	ı
		•	l .	1	ł		1
i		i	ļ	l :	ł		1

#### I AM RESPONSIBLE FOR THIS REPORT. THE INFORMATION IS COMPLETE AND CORRECT.

NAME AND TITLE (PRINT) DATE Richard Hinkley, Geologist

# FORMATION RECORD

(ATTACH ADDITIONAL SHEETS IF NECESSARY)

ELEVATION USED:		GEOLOGIST NAME:	TOPS TAKEN FRO	OM:			
1142	Richard Hinkley		DRILLE	RS LOG [	SAMPLE LOG X ELECTRIC LO		
FROM	(TITE, COLOR, HARDNESS)		FROM	то		RMATION LOR, HARONESS)	
		NALLY ORILLED, <i>ADD TRUE VERTICAL</i> WHERE APPROPRIATE.	].				
Del IIII on	I						
0	727	Drift					
737	737 874	Sand		Į			
874	1360	Sand & Shale		İ			
1360	1400	Triple Gyp.					
1400	1548	Shale & Sand stringers					
1548	1601	Michigan Stray Sand	1				
1601	1736	Shale & Sand		1			
1736	2592	Coldwater Shale					
2592	2712	Sudbury Shale					
2712	3094	Bedford Shale					
3094	3247.	Antrim Shale		1			
3247	3299	Traverse Fm.	Ï				
3299	3827	Traverse Lime (L.S. vf					
		xln, Dense, tight, no					
,		fluorescence.)					
3827	3883	Bell Shale					
3883	3950	Dundee Lm.					
3950	3961	Reed City Anhydrite					
3961	4117	Reed City Dolomite (Dol,	Ì				
		vf xln, sucrosic tex,					
		some Intergranular					
		porosity, Trace Dull	1				
4335	4710	Fluorescence.)					
4117	4718	Detroit River (Salt,					
		anhydrite, & dolomite.					
		Gas shows in sour zone, no Fluorescence.)					
4718	4780	Massive Anhydrite					
4780	5039	Richfield (Interbedded					
4,00	3033	anhy & dolomite, vuggy	IF	WELL WAS CORE	D, ATTACH CORE DE	SCRIPTION	
		and intergranular poro-	15				
		sity at base of formati		DRILL ST	EM TEST DATA		
		no hydrocarbon shows.)					
5039	5080	Black Lime (L.S. F.xln,					
		V. Arg, fair porosity,					
		no hydrocarbon shows.)	]				
	5080	T.D.	1				
			]				

#### STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES **GEOLOGICAL SURVEY DIVISION**

AUG 2 6 1880 LANSING HASASOPY3 1980 FEB 28 1980

### **WELL PLUGGING RECORD**

(Submit in TRIPLICATE Within 30 Days After Plugging is Completed)

PERMIT NUMBER
33466
FIELD NAME
Harsau/Fuart

			Hersey/Evart
COMPLETE NAME(S) AND ADDRE	SS OF WELL OWNER		
Dart Oil & Gas Co.	rp., 600 Dart Road, M	ason, Michigan	48854
COMPLETE LEASE OR FARM NAM	ME(S)		WELL NUMBER
Norman Maney			1-30
WELL LOCATION		ТО	NNSHIP COUNTY
NW % NE %	SW % SEC. 30 T. 171	N R. 8W E	vart Osceola
TYPE OF WELL (Oil, Gas, Dry Hole,	, etc.)	TOTAL DEPTH FOI	RMATION
Dry Hole		5080	Amherstburg
DATE PLUGGING STARTED	DATE PLUGGING COMPLETED		S) WHO ISSUED PERMIT OR WITNESSED
2/11/80	2/11/80	PLUGGING Mich	ael Moss

	CASING	G RECORD	
SIZE CASING	DEPTH SET	AMOUNT RECOVERED	SHOT OR RIPPED
16"	70'	none	
9 5/8"	868'	none	
		ļ	

Were tools, tubing, casing, etc., lost or left

BRIDGES OR PLUGS											
TYPE (Brush, Stone, Cement, Mechanical, etc.)	DEPTH PLACED	SACKS OF CEMENT AND ADDITIVES									
Cement	5000'	100 sx									
Cement	3900'	75 sx									
Cement	3200'	75 sx									
Cement	930'	75 sx									
Cement	surface	10 sx									
	(rat hole)										

If yes, give details:

in the hole before or during plugging?	X YES		All casing left in hole.
Did a Service Company pump mud, spot cement, or set bridge plugs?	X YES	□no	If yes, give name and address:  Dowell, Box 159, Mt. Pleasant,
Was the well plugged by a Company or Contractor other than Owner or Operator?	<b>⊠</b> YES	NO	Michigan 48858 If yes, give name and address: Bigard, 1315 N. Mission Road, P.O. Box 509, Mt. Pleasant, Mich. 48858
Representatives of Owner, Operator, Company, oplugging:	r Contractor v	who witnessed	Jud Howdyshell
75 sx spotted at 3200' (acr 930' (into surface casing).	00' (acro coss Trav	oss Dunde verse To below	ee top, Bell and lower Traverse), p and Antrim), 75 sx spotted at Plug plow level and weld 5" steel cap
			(USE REVERSESTOE IF NEEDED)

"I state that I am authorized by said Owner or Operator to ma tion, and that the facts stated herein are true, correct and com		
NAME AND TITLE (Typed or Printed)		COMPANY NAME AND ADDRESS
Ward Kelner, Evaluation Engineer		Dart Oil & Gas Corporation
SIGNATURE	DATE (Month, Day, Year)	600 Dart Road
Mara Lelner	2/13/80	Mason, Michigan 48854

#### **OPERATORS USE**

Description of Detail (cont.) or Other Supplemental Data:

<u> </u>	_						
				<del></del>			
	_						
			<u> </u>				
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							W
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		<del></del>					
	ARTMENT	USE ONL	.Y				
Supplemental Plugging Data and Site Conditions:					4-		
8/22/80 - STE " asAN, LEVEL,	AND	01	FOR	APPRO	11/		
				<del> </del>			
						<u> </u>	
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			-				
		<del></del>					
					<u>-</u> -	<u> </u>	
						······	
							.,
FINAL INSPECTIONS	RY DEPART	MENT DE	DRESENT	TIVES			
SIGNATURE	OT DETAIL!	WEIGHT HE	DIVISION			DATE	
						1	
nichael & noss	61801	10611	AL	SUAVE	C	8/22/6	0
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#### STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES GEOLOGICAL SURVEY DIVISION

	PERMIT NUMBER
	33466
1	FIELD NAME

surf.

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Posision Office	. 2 cones		GEOLOGI	Ove anue	DIVIDIT	,,,			
Field Office Others On	File copy	PERM	IT TO F	DON	FIELD NAME				
	DRESS OF PERMITTEE Oil & Gas								
Maney					·			V	
LOCATION (%	4 34 or other)		SECTION				TOWNS	#P	COUNTY
NW NE	SW,		30	т 17N в	8W	Evar	`t	0sc	eola
Dry ho	(Oil, Gas, Dry Hole, etc.)	DATE COMPLETE 2/10/80	_	DATE PLUGO		START	PLUGGING PERMIT T. Baker		& DATE
LAST PRODUCT	TION						PLUGGING TO BE D	ONE BY	
BOPD	BWPD	MCFGPD		DATE			Bigard	#3	
600 Da Box 15	Dil & Gas art Rd. 51A		COP	HES MAILED TO	)	· · · · · ·			
Mason,	,-MI-48954		CASING AN	D CEMENTI	IG RECO	RD			
HOLE DIA	CASING DIA & WT./FT.	DEPTHS SET		CEMENT QUAL	NTITY, TYP	E, ADDIT	IVES	CMT TOP.	PERFORATIONS
	16"	70						ll	
	9578"	868	350					surf.	

#### GEOLOGIC DATA; GAS AND OIL SHOWS; DRILLING AND COMPLETION DATA:

E LOG TOPS:

STRAY SAND 1548

COLDW SH 1822

ANT 3093 TF 3247

TL 3299 BELL 3827

DD 3883 RCA 3950

RCD 3961

DR 4117

1ST DRS 4181 MASSIVE 4718

**RICH 4780** BL LM 5039

TD 5080

PLUGGING REQUIREMENTS\*

Plugging requirements outlined are to be executed in eccordance with the provisions of Act 61, P.A. 1939, as amended, and rules and orders adopted thereunder.

Spot 100 sx cmt. at 5000'. Spot 75 sx cmt at 3900 Spot 75 sx cmt at 3200' Spot 75 sx at 920'. Cut csg off 3' below grd & cap w/cmt & steel plate.

\*NOTE BONDS CANNOT BE RELEASED UNTIL A PLUGGING IS COMPLETED, CELLAR RAT HOLE AND PITS FILLED, WELL SITE RESTORED AND RECORDS FILED. WATER WELLS MUST BE PLUGGED ACCORDING TO RULE 166 OF ACT 294 P.A. 1965, "GROUND WATER QUALITY CONTROL". It is further made a requirement of this permit that the applicant give notice to the public utilities in accordance with Act 53, P.A. 1974 C.L. 460,701 to 480,718 and comply with each of the requirements of the act.

AUTHORIZED BY (signature)

Cadillac, D#6

2/12/80

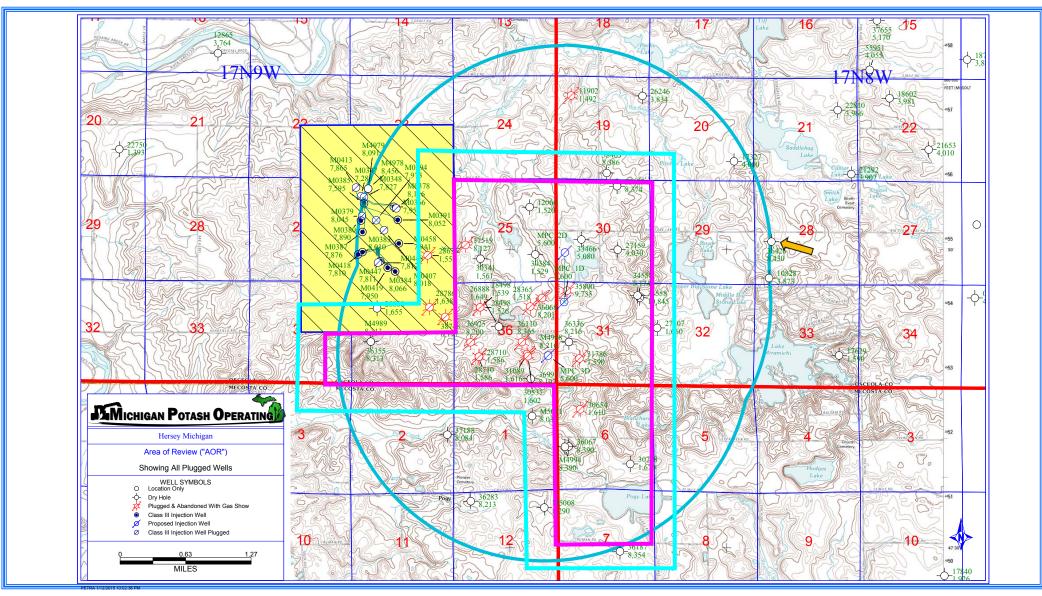


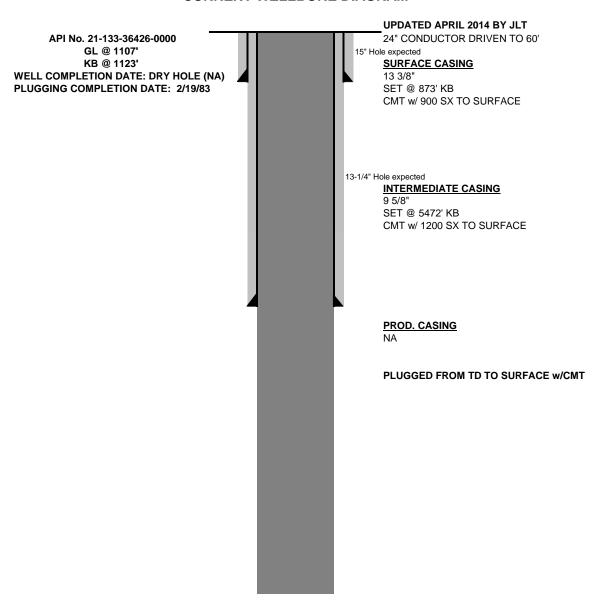
Figure B4. Map showing all plugged wells, shallow (that do not penetrate any confining horizon) or deep (that penetrate confining horzion) within the area of review. Total Depths are listed. There are several shallow Michigan Stray wells that do not penetrate the injection or confining horizon.



#### MCCLAIN 1-28

# NE NW SW Sec 28 T17N R8W OSCEOLA COUNTY, MI

#### **CURRENT WELLBORE DIAGRAM**



TD @ 8440' KB

#### **MCCLAIN 1-28 WELL HISTORY**

DATE

DESCRIPTION

1/15/1983

2/17/1983

2/17/1983

DRILLING COMPLETED. FORMATION AT TD CINCINNATIAN.
24" CONDUCTOR SET AT 60'
13 3/8" SET AT 873'; 900 SX
9 5/8" SET AT 5472'; 1200 SX

2/18/1983

PLUGGING START DATE
RUN DRILL PIPE TO 8440' AND SET 145 SX
PULLED DRILL PIPE TO 8021' AND SET 515 SX
PULLED DRILL PIPE TO 5500' AND SET 280 SX
PULLED DRILL PIPE TO 3700' AND SET 280 SX

PULLED DRILL PIPE TO 1900' AND SET 280 SX PULLED DRILL PIPE TO 100' AND SET 35 SX

2/19/1983 PLUGGING COMPLETED.

## STATE OF MICHIGAN

MAR 8 1983 PERMIT NUMBER

			DEPAR	RTMEN	T OF N	ATUR.	AL RES	OURCE	S	( 1811	•
LOG	OF	OIL,	GAS,	DISP	OSAL	OR	STOF	RAGE	WELL	(ACT	61)
	Sı	ubmit	in DUPL	ICATE	Within	30 Da	ays afte	r Well	Complete	on	

ĺ	36426
I	DEEPENING PERMIT NUMBER

NAME(S) &				S) SHOWN	ON PERM	IIT -		NAME &										
Willmo	•							T. D. Provins Drilling Company 2113 Enterprise Drive										
1	2250 Enterprise Drive Mt. Pleasant, MI 48858									-								
	Mt. Pleasant, MI 48858																	
LEASE NAME(S) & WELL NUMBER SHOWN ON PERMIT  McClain #1-28								YES NO XX										
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9 5/8"	5472'		1200 Sx						ļ		<del>                                       </del>						<b>├</b>	
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DATE		17	NAME AND	TITLE (PR	NT)				SIGNAT	UR	//			/.e	<del></del>	7		$\overline{}$

William E. Booker, Geologist NOTICE REPORT COMPLETE SAMPLE AND FORMATION RECORD AND DRILL STEM TEST INFORMATION ON REVERSE SIDE

#### STATE OF M. DEPARTMENT OF NATURAL RESOURCES **GEOLOGICAL SURVEY DIVISION**

MAR 7 1983

WELL PLUGGING RECORD

(Submit in TRIPLICATE Within 30 Days After Plugging is Completed)

PERMIT NUMBER	
36426	
3 1002	MAV-Q

MAY 2 0 1984 NAME MAY 2 7 1983 SEP 1 7 1984 COMPLETE NAME(S) AND ADDRESS OF WELL OWNER Willmet, Inc., 2250 Enterprise Drive, Mt. Pleasant, MI 48858 COMPLETE LEASE OR FARM NAME(S) WELL NUMBER McClain 1-28 WELL LOCATION TOWNSHIP COUNTY R. 8W NE 1/4 NW 1/4 SW % SEC. 28 T. 17N Evart Osceola TYPE OF WELL (Oil, Gas, Dry Hole, etc.) TOTAL DEPTH FORMATION Dry Hole 8440 Cincinnatian DEPT. REPRESENTATIVE(S) WHO ISSUED PERMIT OR WITNESSED PLUGGING DATE PLUGGING STARTED DATE PLUGGING COMPLETED 2-18-83 Snider 2-19-83

	CASING	RECORD	
SIZE CASING	DEPTH SET	AMOUNT RECOVERED	SHOT OR RIPPED
24"	60'		
13 3/8"	8731		
9 5/8"	5472		
		L	

	BRIDGES OR PLUGS	
TYPE (Brush, Stone, Cement, Mechanical, etc.)	DEPTH PLACED	SACKS OF CEMENT AND ADDITIVES
Cement	8440 - 8021	145 Sx
Cement	8021 - 5500	515 Sx
Cement	5500 - 3700	280 Sx
Cement	3700 - 1900	280 Sx
Cement	1900 - 100	280 Sx
Cement	0 - 100	35_Sx

Were tools, tubing, casing, etc., lost or left in the hole before or during plugging?	YES	ONX	If yes, give details:
Did a Service Company pump mud, spot cement, or set bridge plugs?	XX YES	□no	If yes, give name and address:  Dowe11
Was the well plugged by a Company or Contractor other than Owner or Operator?	YES	XX NO	If yes, give name and address:
Representatives of Owner, Operator, Company, or plugging:	r Contractor	who witnessed	Marvin Woods
pulled drill pipe to 5500 and	set 280 s	sx, pulled	ll pipe to 8021 and set 515 sx, drill pipe to 3700 and set 280 sx, drill pipe to 100 and set 35 sx.
			(USE REVERSE SIDE IF NEEDED)

CERTI	FICA	TIOI	<u>J</u>								
ake this	repo	rt; an	d tha	t thìs	rep	oort	was	prepared	under	my	superv

"I state that I am authorized by said Owner or Operator to mal ision and direction, and that the facts stated herein are true, correct and complete to the best of my knowledge.

NAME AND TITLE (Typed or Printed)

William E. Booker, Geologist

DATE (Month, Day, Year)

Strickler Geological Services, Inc. 1425 S. Mission Mt. Pleasant, MI 48858

COMPANY NAME AND ADDRESS

SIGNATURE

2/28/83

OPERATORS USE

	OPERATORS USE		
escription of Detail (cont.) or Other Supplemental Data:	,		
	· · · · · · · · · · · · · · · · · · ·		
,			
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	EPARTMENT USE OF	ILY	
pplemental Plugging Data and Site Conditions:			
6/14/84 -			
Site is clean and recontoured.	There were no h	rine seeps and gras	s has grown in
Okay for final approval.	THERE WELL NO I	Tine Sceps and gras	January January
Owy for find approval.			
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	NS BY DEPARTMENT R		
SIGNATURE		DIVISION	DATE
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	LEOFOLICA!	SURVET	9/15/84
July W	FEOLOFICAL	SURVEI	4/13/84

# This document baid for with State funds

## STATE OF MICHIGAN ONE DISTRIBUTION DEPARTMENT OF NATURAL RESOURCES

PERMIT NUMBER	36426
FIELD NAME	

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Division Office 2 copies GEOLOGICAL SURVEY DIVISION							
Field Office -	File copy	PERMI	FIELD NAME	Wildcat			
1	DORESS OF PERMITTEE						
W:	illmet						
LLASE NAME	AND WELL NO.						
Mo	Clain #1-28						
LOCATION (%	Va Va or other)		SECTION		YOWNSH	IP	COUNTY
NE	E NW SWF		28	T 17NR 8W	Evart	(	sceola
TYPE OF WEL	L (Oil, Gas, Dry Hole, etc.)	DATE COMPLETED		DATE PLUGGING WILL START	PLUGGING PERMIT	REQUESTED BY	& DATE
Dr	y hole	2/17/83		2/18/83	2/18/8	3 M. Woo	ds
LAST PRODUC	TION				PLUGGING TO BE DE	ONE BY	
BOPD	BWPD	MCFGPO		DATE	Provin	s #7	
PERMIT MAILE	0 10	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	C(	DPIES MAILED TO			
Wi	llmet						
		(	CASING A	IND CEMENTING RECORD			
HOLE DIA	CASING DIA & WILFT	DEPTHS SET	1	CENENT QUANTITY TYPE ADDI	TIVES	CMY TOP	PERFORATIONS

GEOLOGIC DATA; GAS AND OIL SHOWS; DRILLING AND COMPLETION DATA:

900.\_\_\_

1200

CEMENT QUANTITY TYPE ADDITIVES

#### CONFIDENTIAL

60'

.873

54741

133/8"

95/8"

Plugging requirements outlined are to be executed in accordance with the provisions of Art 61, P.A. 1969, As amended and rules and orders adopted thereunder

P.I. as per Hineral Wells:

Circl. Class A cmt. to top Niag. Circl. 50-50 poz cmt. to within 100' of ground level.

NOTE: BONDS CANNOT BE RELEASED UNTIL A PLUGGING IS COMPLETED, CELLAR HAT HOLE AND PITS FILLED, WELL SITE RESTORED AND RECORDS FILED, WATER WELLS MUST BE PLUGGED ACCORDING TO RULE 166 OF ACT 294 P.A. 1965, "GROUND WATER QUALITY CONTROL. It is further made a requirement of this permit that the applicant give notice to the public utilities in accordance with Act 53, P.A. 1971 C.L. 450.701 to 460.718 and comply with each of the requirements of the act.

·			
THORIZED BY (signature)	2	OFFICE	DATE
milland	- Minds	Cadillac D#6	2/22/83

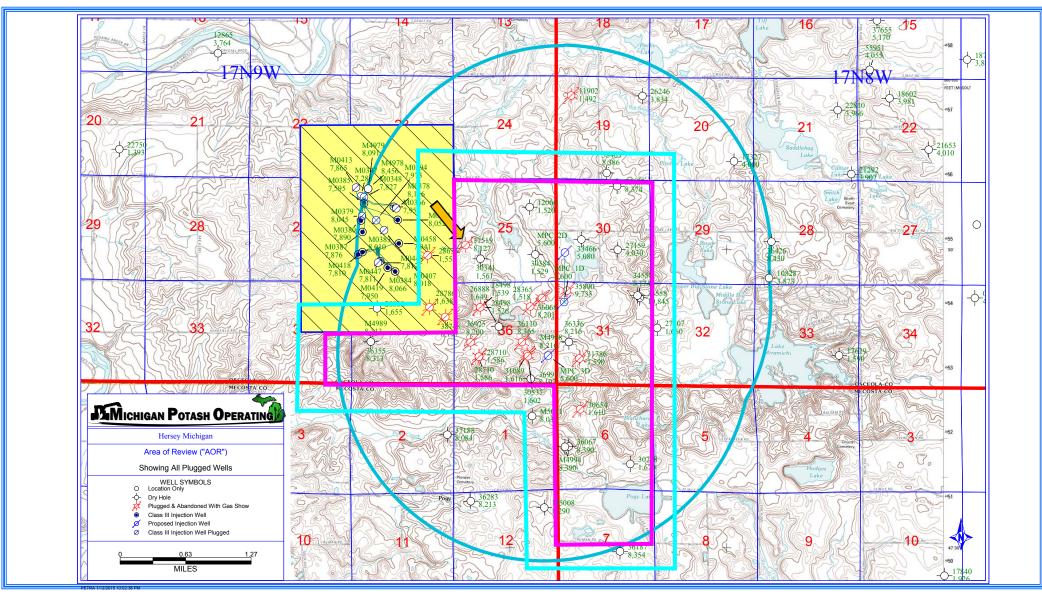


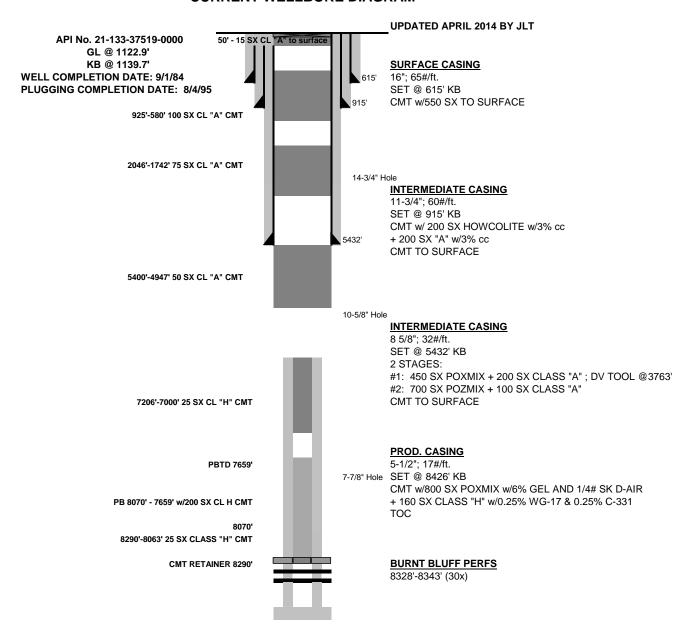
Figure B4. Map showing all plugged wells, shallow (that do not penetrate any confining horizon) or deep (that penetrate confining horzion) within the area of review. Total Depths are listed. There are several shallow Michigan Stray wells that do not penetrate the injection or confining horizon.



#### **MILLER 1-25**

## SE NE SE Sec 26 T17N R9W OSCEOLA COUNTY, MI

#### **CURRENT WELLBORE DIAGRAM**



TD @ 8425' KB PBTD @ 7659'

#### MILLER 1-25 WELL HISTORY

 DATE
 DESCRIPTION

 7/9/1984
 SPUD.

 9/13/1984
 PERFORATED

PERFORATED 30 HOLES, 2/FT: 8328'-8343'

9/1/1984 WELL COMPLETED. FORMATION AT TD CABOT HEAD.

16" SETAT 615'; 550 SX CMT

11-3/4" SET AT 915'; 200 SX HOWCO LITE w/3% cc + 200 SX "A" w/3% cc

8-5/8" SET AT 5432'; 2 STAGES: #1 450 SX POZMIX +200 SX CLASS "A" DV TOOL @ 3763', #2

700 SX POZMIX + 100 SX CLASS "A"

5-1/2" SET AT 8425': 800 SX POXMIX w/6% GEL AND 1/4#/SK D-AIR + 160 SX CLASS "H" w/0.25%

WG-17 & 0.25% C-331

7/31/1995 PLUGGING STARTED

8/1/1995 RU HALLIBURTON TO KILL WELL. 1,000 PSI ON TUBING. PUMPED 55 BBL 10.2 BRINE DOWN

TUBING. FILLED CASING 42 BBL. ND TREE. NU BOP. START OUT WITH TUBING. GOT OUT WITH TUBING. RU HALLIBURTON WIRELINE. MAKING GAUGE RING AND JUNK BASKET RUN.

RAN 5,000'. SHUT IN UNTIL AM.

8/2/1995 PREPARE TO CUT 5-1/2" CASING BELOW SLIPS. FINISH TIH w/TUBING, TAG CMT RETAINER

@ 8290'. RU HALLIBURTON AND KAL-CON, STING OUT OF RETAINER AND LOAD HOLE w/115 BBLS BRINE. STING INTO RETAINER. PUMP 25 SX CLASS H CMT THRU RETAINER, STING OUT OF RETAINER AND SPOT 25 SX CLASS H CMT ON TOP OF RETAINER. PULL TUBING TO 7206'. REVERSE CIRCULATE TO FILL HOLE AND SPOT A 25 SX CLASS H CMT PLUG FROM 7000'-7206'. TOOH w/TUBING (STAND BACK 70 STAND-LAY DOWN REST). ND BOP'S AND TUBING HEAD. SPEAR 5-1/2" CASING AND ATTEMPT TO PULL BUT UNSUCCESSFUL. SDFN.

8/3/1995 RU ENTERRA OILFILED TOOLS CASING CUTTER, CUT 5-1/2" CASING 1' BELOW SLIPS AND

REMOVE FROM HOLE. RU HALLIBURTON WIRELINE AND FREEPOINT CASING (NO MOVEMENT BELOW 2500'). 50% @ 2200'. 70% @ 2000'. RU CUTTER AND CUT CASING @ 2000'. RD HALLIBURTON, RU CASING TOOLS, PULL AND LAY DOWN 2000' OF 5-1/2" CASING (49 FULL JOINTS - 2 CUTOFFS). RD CASING TOOLS, TIH WITH TUBING TO 4400'. RADIATOR HOSE BROKE ON RIG, DOWN FOR REPAIRS. FINISH TIH WITH 2-7/8" TUBING TO 5400'. SD

FOR EVENING.

8/4/1995 PLUGGING COMPLETE. RU HALLIBURTON AND KAL CON, BREAK CIRCULATION AND SPOT A

50 SX CLASS A CMT PLUG AT 5400'. TOOH LAYING DOWN TUBING TO 2046', WHERE A 75 SX CLASS A CMT PLUG WAS SPOTTED. TUBING WAS PULLED TO 925' WHERE A 100 SX CLASS A CMT PLUG WAS SPOTTED. TOOH TO 50', SPOT A 15 SX CLASS A CMT PLUG TO SURFACE, RIG DOWN AND RELEASE HALLIBURTON. CUT OFF HEAD AT GROUND LEVEL IN CELLAR AND WELD A 1/2" STEEL PLAT ONTOP. FOLLOWING ARE TOP AND BOTTOM FOOTAGE FOR

INDIVIDUAL CMT PLUGS:

PLUG SPOTTED AT 8290', 25 SX, TOP OF PLUG AT 8063'
PLUG SPOTTED AT 7200', 25 SX, TOP OF PLUG AT 7000'
PLUG SPOTTED AT 5400', 50 SX, TOP OF PLUG AT 4947'
PLUG SPOTTED AT 2000', 75 SX, TOP OF PLUG AT 1742'
PLUG SPOTTED AT 925', 100 SX, TOP OF PLUG AT 580'
PLUG SPOTTED AT 50', 15 SX, TOP OF PLUG AT SURFACE

STATE OF MICHIGAN	TYPE OR PRINT
REQUEST FOR TRANSFER OF A PERMIT	PERMIT NO WELL TYPE
SUBMIT 4 COPIES TO: Department of Natural Resources	37519 Gas
Geological Survey Division	FIELD NAME
Box 30028 Lansing, Michigan 48909	Hersey-Clinton WELL NAME AND NUMBER
Filing for change of ownership of well is required in accordance with Act	Miller 1-25
61, P.A. 1939 and CAct 315 P.A. 1969, as amended, and Administrative	WELL COCATION
Rules promulgated thereunder.	SE 1/4 NE 1/4 SE 1/4 SECTION 26 T 17N R 9W
	TOWNSHIP COUNTY
TRANSFER OF A PERMIT FROM:	Hersey Osceola
NAMEIST OF SELLING OWNERS	
PPG 01] & Gas Co., Inc.  ADDRESS Number and Street City of Town State Zin Code Telephone	
One Jackson Square, Suite 600, Jackson, MI 492	201 (517) 782-8145
All operating rights are discharged by	
Owner(s) Representative(s)	Signification Date(s)
DDC 0/3 0 0 0 7 1 1 0 3 1 0 1 1 3 1	a/ a/w/07
PPG Oil & Gas Co., Inc., Mr. Donald R. Hall	pune Rh 12/14/87
CHOINETY FOR DEPARTS IN CONSTRUCTION OF THE CONTRACTOR OF THE CONT	THE STATISTICS OF THE PERSON OF THE PERSON OF THE
ELIGIBILITY FOR PERMITS IS CONDITIONED UPON COMPLIANCE WITH NATURAL RESOURCES. PERMITS WILL NOT BE GRANTED TO PERSO	
TATOTAL REGORDES: FERINITS WILL NOT BE GRANTED TO FERSO	143 NOT IN CONFERENCE.
Note the second	
NON-SUBMISSION AND/OR FALSIFICATION OF THIS INFORM	
NAME(S) OF ACQUIRING OWNERS)	A PERMIT TO:
(	
Marathon Oil Company  ADDRESS Number and Street City or Town State Zip Code Telephone	
One Jackson Square, Suite 600, Jackson, MI 49	201 (517) 782-8145
(We) (I) have acquired the well under this permit and assume full responsil	
law, regulations and orders.	
	SAFECO Insurance Company of America
SURETY BOND: SINGLE WELL ATTACHED BONDING  BLANKET ON FILE BOND NU	JMBER 5194219
A BLANKE! W ON FILE BOND NO	JWREK 0194E13
All operating rights and responsibilities are assumed by	
Owner(s) Representative(s)	Signature(s) Date(s)
	David W. Hoopmon 12/16/87
Marathon Oil Company, Mr. David W. Hoopman	Navid W. Hoopmon 12/16/87
FOR DEPARTMENT OF NATUR	AL RESOURCES USE ONLY
	DISTRIBUTION BY DNR
	Lansing
	Acquiring Owner
ADDROVED III III III III III III III III III I	Selling Owner
Signature	Day
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OCT 10 1984 DEPARTMENT OF NATURAL RESOURCES TO 1984 PERMIT NUMBER LOG OF OIL, GAS, DISPOSAL OR STORAGE WELL (ACT 61) DEEPENING PERMIT NUMBER Submit in DUPLICATE Within 30 Days after Well Completion NAME(S) & ADDRESS OF OWNER(S) SHOWN ON PERMIT NAME & ADDRESS OF DRILLING CONTRACTOR(S) PPG OIL & GAS, INC. INDRIL, INC. 2258 Enterprise Drive PO Box 668 Mt. Pleasant, MT 48858. EASE NAMEIS) & WELL NUMBER SHOWN ON PERMIT Mt. Pleasant, MT 48858 YES NO [ MILLER #1-25 SURFACE LOCATION SECTION TOWNSHIP TOWNSHIP NAME RANGE SE NE SE 9W 26 17N Hersey FOOTAGES (East/West) COUNTY NAME (North/South) 560 852 Ft. from North 0sceola Ft. from East Line of quarter section Line and SUBSURFACE LOCATION SECTION TOWNSHIP TOWNSHIP NAME SW NW SW 25 17N Hersey FOOTAGES (North/South) (East/West) COUNTY NAME 634 Ft. from South Line and 558 Osceola Ft. from West Line of quarter section DRILLING BEGUN TOTAL DEPTH OF WELL TYPE WELL Driller 8425 Log 8424 Gas well ELEVATIONS 7/9/84 D FT. DRLD. - ROTARY TOOLS DRILLING COMPLETED FORMATION AT T.D. K.B. R.F. 1138.3 From 0 To 8425 1139.7 8/8/84 Cabot Head r FT. ORLD. - CABLE TOOLS WELL COMPLETED PRODUCING FORMATION(S) B.T. Grd ε 1122.9 \_ To. 9/1/84 CASING, CASING LINERS AND CEMENTING **PERFORATIONS** OPEN WHERE SET CEMENT Ft. Pulled SIZE NUMBER DATE INTERVAL PERFORATED HOLES YES NO 615' 550 sx1-3/4" 9/13/84 2/ft 915' 400 sx 8328-8343 (30x) X 5432 1 8-5/8" 650 sx 1st tool 03763 310sx 2nd, stade 5 ]/2" 8426 960sx ALL OTHER OIL AND GAS SHOWS OBSERVED OR LOGGED **GROSS PAY INTERVALS** FORMATION OIL OR GAS WHERE OBSERVED (X) FROM ΤO OIL **FORMATION** Gas Log. OR GAS DEPTH Pits Odor 8327 8358MD Burnt Bluff Gas 8050 8075TVD Reed City 4075 X Gas 3010 X Antrim Gas STIMULATION BY ACID OR FRACTURING WATER FILL UP (F.U.) OR LOST CIRCULATION (L.C.) (X) FORMATION F.U. L.C. DEPTH AMOUNT DATE Interval Treated Materials and amount used 9/13/84 8328-43 500 gal. 15% None DEPTH CORRECTION DEVIATION SURVEY PLUGGED BACK MECHANICAL LOGS, LIST EACH TYPE RUN FUN AT YES LOG TYPES LOGGED INTERVALS DEPTH CORRECT'N DEGREES NO DEPTH (X) Brand LDT-CNL-GR 100-8420 See attached Schlumberger 6600-8420 Sonic Birdwell DLL-MLL 3150-5429 7000-8422 PRODUCTION TEST DATA OIL - Bbls/day GRAVITY - OAPI COND. Bbls/day GAS - MCF/day WATER - 8bls/day H2S - Grains/100 cu. ft. 8.H.P. AND DEPTH 1,000 I AM RESPONSIBLE FOR THIS REPORT. THE INFORMATION IS COMPLETE AND CORRECT. DATE NAME AND TITLE (PRINT) William E. Booker, Geologist NOTICE REPORT COMPLETE SAMPLE AND FORMATION RECORD AND DRILL STEM TEST INFORMATION ON REVERSE SIDE R · 7210

#### STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES GEO

AUG 0 6 1984

LANSING HAS COPY

GEOLOGICAL SURVEY DIVISION	- 400 I
WELL PLUGGING RECORD	

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		-J-N	904	
27510	1.	6 7		~

PERMIT NUMBER

(Submit in 1 Rir	LICATE Within 30 Days After Pidgging is Col	npieteur is i		212 x2 (PO2) 110FF
ABANDONED		1984	1	Hersey
COMPLETE NAME(S) AND AD				
PPG Oil & Gas Co.	. Inc., 2258 Enterprise Dri	ve, Mt. Pleasant	t, MI 48358	
COMPLETE LEASE OR FARM	NAME(S)			WELL NUMBER
Miller (Abandoned	Hole)			#1-26/-25
WELL LOCATION			TOWNSHIP	COUNTY
SE 4 NE 4	SE ¼ SEC. 26 T. 1	7N R. 9W	Hersey	0sceola
TYPE OF WELL (Oil, Gas, Dry	tole, etc.)	TOTAL DEPTH	FORMATION	
Abandoned Hole		8070	Niagaran	
DATE PLUGGING STARTED 8-1-84	DATE PLUGGING COMPLETED 8-1-84	DEPT. REPRESENTA PLUGGING	TIVE(S) WHO ISSUED PER	RMIT OR WITNESSED

	CASING	RECORD	
SIZE CASING	DEPTH SET	AMOUNT RECOVERED	SHOT OR RIPPED
11 3/4"	915	0	
8 5/8"	5432	0	

BRIDGES OR PLUGS					
TYPE (Brush, Stone, Cement, Mechanical, etc.)	DEPTH PLACED	SACKS OF CEMENT AND ADDITIVES			
Cement	8070	200 sx H			
		<del> </del>			

Were tools, tubing, casing, etc., lost or left in the hole before or during plugging?	YES	₹XNO	If yes, give details:
Did a Service Company pump mud, spot cement, or set bridge plugs?	XX YES	NO	If yes, give name and address: Halliburton
Was the well plugged by a Company or Contractor other than Owner or Operator?	YES	⊠ NO	If yes, give name and address:
Representatives of Owner, Operator, Company, or plugging:	Contractor v Marvin		
Cyro run and hole off track, plu	igged back	c from 807	O to 7659 with 200 sx Cl H cement.
			(USE REVERSE SIDE IF NEEDED)

CERTIFICATION					
"I state that I am authorized by said Owner or Operator to make this report; and that this report was prepared under my supervision and direc-					
tion, and that the facts stated herein are true, correct and complete to the best of my knowledge."					
NAME AND TITLE (Typed or Printed)	COMPANY NAME AND ADDRESS				

NAME	AND	111	しと	( 1 Aben	Οı	Printed)

William E. Booker, Geologist

SIGNATURE

William E

8-2-84

DATE (Month, Day, Year)

STRICKLER GEOLOGICAL SERVICES, INC. 1425 S. Mission

Mt. Pleasant, MI 48858

**OPERATORS USE** 

Description of Detail (cont.) or Other Supplemental Data:		التعار المناسبة المناسبة والمناسبة المراسبة بالمراسبة والمناسبة المناسبة المناسبة المناسبة والمناسبة والمناسبة	and the state of t
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DE	PARTMENT USE ONLY		
Supplemental Plugging Data and Site Conditions:	A A A A A A A A A A A A A A A A A A A		
	5.4.4.5		
WELL WAS SIDETPACKED YNDER	SAME PEKNI	7 *	
	,		
		<del></del>	
	~		
FINAL INSPECTION	NS BY DEPARTMENT REPRE	SENTATIVES	
SIGNATURE	DI	VISION	DATE
			1 / / /
michael J. Moss	GEOLOGIAL	CURINGL	2/15/al
- Massill He luise	- VENDOILYE	-> ur vr_/	+ 9/ 1/1 07
7	1		1

his document paid for with State funds

#### STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES GEOLOGICAL BURVEY DIVISION

PERMIT NUMBER 37519 lost hoje FIELD NAME Tersey

COUNTY

Permittee - Orig. & 1 copy Division Office - 2 copies Field Office - File copy Others - On request

ONA DISTRIBUTION

LAST PRODUCTION

PERMIT TO PLUG AND ABANDON

NAME AND ADDRESS OF PERMITTEE

LEASE NAME AND WELL NO. Miller #1-25 Lost hole

COCATION (14 14 14 or other)

SE NE SE, TYPE OF WELL (Off. Gas, Dry Hole, etc.) Lost hole

DATE COMPLEYED 8/1/84

SECTION

25

19W  $_{\rm T}$  1.7  $_{\rm R}$ DATE PLUGGING WILL START 8/1/84

Osceola Persey PLUGGING PERMIT REQUESTED BY & DATE

W. Booker 8/1/84

Indril #7

PLUGGING TO BE DONE BY

TOWNSHIP

BOPD BWPD MCFGPD DATE PERMIT MAILED TO COPIES MAILED TO

CASING AND CEMENTING RECORD						
HOLE DIA	CASING DIA, & WTJFT.	DEPTHS SET	CEMENT QUANTITY, TYPE, ADDITIVES	CMT. TOP.	PERFORATIONS	
	24"	. 46				
	16''	61.5	550	surf		
·	113/4"	915	400	14		
-	85/8''	5432	1450	11		

#### GEOLOGIC DATA; GAS AND OIL BHOWS; DRILLING AND COMPLETION DATA:

MEASURED DEPTHS:

CONFIDENTIAL.

A1E 7665 BNJa 8047

T.D. 8077

#### PLUGGING REQUIREMENTS'

Plugging requirements outlined are to be executed in accordance with the provisions of Act 61, P.A. 1939, as amended, and rules and orders adopted thereunder.

NOTE: Well to be P.B. for deviation correction. Well to be plugged back w/cmt. to approx. 7650'.

\*NOTE: BONDS CANNOT BE RELEASED UNTIL A PLUGGING IS COMPLETED, CELLAR RAT HOLE AND PITS FILLED, WELL SITE RESTORED AND RECORDS FILED, WATER WELLS MUST BE PLUGGED ACCORDING TO RULE 166 OF ACT 294 P.A. 1965, "GROUND WATER QUALITY CONTROL", It is further made a requirement of this permit that the applicant give notice to the public utilities in accordance with Act 53, P.A. 1974 C.L. 460.701 to 460.718 and comply with each of the requirements of the act.

AUTHORIZED BY (signature)

OFFICE Cadillac 17/16

DATE 8/1/84

Form R-7213 to be filed in TRIPLICATE within 30 days after completion.

EER 18 1994 STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES GEOLOGICAL SURVEY DIVISION BOX 30028 PERMIT NO. TYPE OF WELL 37519 LANSING, MICHIGAN 48909 Gas Producer NAME AND ADDRESS OF WELL OWNER [ APPROVAL MAILED REQUIRED BY AUTHORITY OF: Marathon Oil Company 1231 E. Mosherville Road APPLICATION TO (Submit 4 copies): Jonesville, MI 49250 X PLUG AND ABANDON CHANGE WELL STATUS NON-SUBMISSION AND/OR FALSIFICATION OF THIS INFORMATION MAY RESULT IN FINES AND/OR IMPRISONMENT. FIELD/FACILITY NAME CHANGE OF WELL STATUS REQUESTED FOR: Hersey Unit PLUG BACK 

EXTEND PLUGGING (T.A.) PERFORATE WELL NAME WELL NO. CONVERT TO INJECTION OR DISPOSAL WELL Miller #1-25 WELL LOCATION ACIDIZE (315 ONLY) FRACTURE (315 ONLY) NW 1/4 of T 17N R SW 1/4 of S₩ 1/4 Section LAST PRODUCTION/INJECTION AND TYPE OF FLUID TOWNSHIP COUNTY Amount per day & injection pressures Osceola Hersey DATE DRILLING COMPLETED DATE LAST PRODUCED/UTILIZED 1 MCFD 8-11-84 Active WORK TO BE DONE BY: T APPROVAL MAILED STARTING DATE To Be Determined A.S.A.P. CASING AND CEMENTING RECORD HOLE. DIA. CASING DIA. & WT.:FT. DEPTHS SET CEMENT QUANTITY, TYPE, ADDITIVES CMT. TOP PERFORATIONS 14 3/4" 164, 65# 6151 N/A 10 5/8" 11 3/4", 60# 9151 200 SX Howcolite w/3% cc + 200 sx "A" w/3% cc Surface 8 5/8<sup>H</sup>, 32# 54321 7 7/8\* Surface 5 1/2<sup>H</sup>, 17# 84251 8328-431 FORMATION RECORD (Formation and depth, oil, gas and water shows, etc.); SEE ATTACHED "EXHIBIT A" 1ST STAGE: 450 SX POZMIX + 200 SX CLASS "A" DV TOOL @ 3763'. 2ND STAGE: 700 SX POZMIX + 100 SX CLASS "A". 800 SX POXMIX W/6% GEL AND 1/4#/SK D-AIR + 160 SX CLASS "H" W/0.25% WG-17 & 0.25% C-331. DETAIL PROPOSED PROCEDURES: GEOLOGICAL SURVEY See Attached {}94 Permits & Bonding Unit DNR ADDITIONAL REQUIREMENTS:

NOTE. THREE COPIES OF WELL PLUGGING OR REWORK (PR 7200-8) ARE TO BE FILED WITHIN 30 DAYS OF COMPLETION

N. R. Daniels, Jr. Michigan Production Superintendent

NAME/SIGNATURE (Authorized Representative)

APPROVED BY ONR

TERMINATION DATE



#### Michigan Department of Natural Resources Geological Survey Division

Permit Number 37519

Well Name & Number MILLER #1-25

RECORD OF WELL PLUGGING OR REWORK	Type of Well (
-----------------------------------	----------------

Field Name Hersey Unit Gas

5 1995

REQUIRED BY AUTHORITY OF: ACT 61, PA 1939, as amended or ACT 315, PA 1969, as amended. Non-submission and/or falsification of this information may result in fines and/or imprisonment.

1/4 1/4 1/4, Section, Township, Range, County SW, NW, SW, Section 25-T17N-R9W, Osceola County

Date Plugging / Rework Started 7/31/95

Date Plusing / Rework Completed 8/04/95 De Company Drive S, Homer, MY 49245

Name and Address of Well OWNER MARATHON OIL COMPANY 4445 E. MOSHERVILLE ROAD JONESVILLE, MI 49250

Name and Address of Contractor/Service Company

CADILLAC HAS COPMCConnell & Scully, 26761 L Drive S, Homer, Halliburton, PO Box 374, Mt. Pleasant, MI 48804

Indicate Operation & Type of Well Permit □ PLUGGING □ REWORK □ Act 61 Oil & Gas□ Act 315 Mineral Wells Name of DNR employee issuing Plugging Permit or Approving Change of Well Status Michael J. Moss Date Issued 3/8/94

☐ Tools, tubing, etc. left in hole - describe in Daily Chronology.

O Well logs run - list types and depths in Daily Chronology.

For WELL PLUGGING Only (HOLE CONDITIONS AFTER PLUGGING)

		CASING					PLUGS	<u> </u>	
Casing Size	Where Set	Amount Casing Pulled	Depth Casing Cut/Perfed: Windows Milled		De Bottom	opth Top	Type of Bridge or Plug	Cement Plugs: Cement type, # sx, and additives	Tagged Top? Y/N
16"	615'	4'	4'		8290'	8290'	Cement Retainer		Y
11-3/34"	915'	4'	4'		8290'	8063'	Cement	25 sx Class "H"	N_
8-5/8"	5432'	4'	4.	╝	7206'	7000'	Cement	25 sx Class "H"	N
5-1/2"	8425	2000'	2000'	╢	5400'	4947'	Cement	50 sx Class "A"	N
,,					20461	1742'	Cement	75 sx Class "A"	N
				▋	925'	580'	Cement	100 sx Class "A"	N
					50'	Surf	Cement	15 sx Class "A"	N_

Check a if NORM material was reinserted into wellbore. If so, describe materials fully in the Daily Chronology section on back of this form.

For WEL	L REWO	RK Only
---------	--------	---------

Formation/Zone

- ☐ CONVERT TO: ☐ Disposal Well ☐ Production
  - □ Storage
- □ Enhanced Recovery □ Other

- □ REMEDIAL: □ Perf & Test □ Repair Casing/Cement □ Redrill □ Other

Well Completed For

Formation/Zone

Well Completed For

		□ PLUGBA	CK: D Nev	v Production 7	Zone 🗆	Disposal   Storage	☐ Enhanced Recovery ☐ Other
			W	ell Casing R	ecord - BE	FORE Rework	
Cas	sing	Cem	ent		Perforat	tions	Acid or Fracture
Size	Depth	Sacks	Туре	From	То	If plugged, HOW?	Treatment Record
			CHEVE	<b>V</b>			
	Well &	Chd Record	AFTER Rev	work (indicate	additions ar	d changes only: complete Te	est Record on next page)
Cas	sing	Comment 1995			Perfora	í	
Size	Depth	Sycks	Туре	From	То	if plugged, HOW?	Acid or Fracture Treatment Record
		Sacks Settling &	Busiaing C	1111			
		Sewing a				<u> </u>	
}	<u> </u>	<del> </del>					
	BEFORE	REWORK				AFTER REWOR	

Total Depth

**Total Depth** 

DAILY PRODUCTION TEST RECORD							DAILY INJECTION RECORD D Injection Well D Brine Disposal				
Date	Oil Water Gas Casing Bbls Water (Bbls) (MCF) Size Date or MCF Gas E		Press Beginning	eure Ending	Specific Gravity of Water						
								[			
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								<u> </u>	<u> </u>		<u> </u>
DAILY CHRO	NOLOG	Y - De	escribe in det	ail the daily c	hronology of	f rework / plu	gging, include	days shut dow	n. Describe	exceptions 1	to issued plugging
Date		Narr	ative - also in	clude dates p	its filled, sur	rface was res	tored, etc L	Jse additional pa	ges as neede	d.	
Date  Nerrative - elso include dates pits filled, surface was restored, etc Use additional pages as needed.  ****SEE ATTACHED****    Page											
NOTICE: Under sections 18s and 18b of Act 61 PA 1939, as amended, and section 23 of Act 315 PA 1969, as amended, a well owner has continuing liability for the integrity of a plugged well.  CERTIFICATION "I state that I am authorized by said Owner. This report was prepared under my supervision and direction. The facts stated herein are true, accurate and complete to the best of my knowledge."											
NAME and TITLE for Owner (printed or typed) C. A. Paulson - Production Engineer  Authorized Signature  Charles Af Pauls  Date 9-1-95							9-1-95				
NOTE: Bonds	s canno	t be te	rminated unt	il plugging is	completed, (	cellar, rat and	mouse holes	, and pits filled,	site leveled as	nd cleaned	and records filed
NOTE: Bonds cannot be terminated until plugging is completed, cellar, rat and mouse holes, and pits filled, site leveled and cleaned and records filed  Mail completed original and three copies to the appropriate DNR District Office within 30 days after completion of plugging or rework.											

# DAILY REPORT CENTRAL PRODUCTION REGION COMPANY OPERATED August 1, 1995

#### WORKOVER/RECOMPLETION

Hersey Unit Miller 1-25 Osceola County, MI AFE NO: OPERATOR: Marathon Oil RIG: McConnell/Scully Rig54

MOC/WI:

MIRU: 07/31/95

COST TO DATE:

AFE AMOUNT:

DAY: 1

PRESENT OPERATION: Rig up to plug and abandon.

REMARKS: 07/31/95: 7:00 - Drove to location to plug well. 10:00 - Arrived on location to spot equipment. 11:00 - Spotted BOP's and adaptors on location. 13:00 - Enterra delivered and spotted liners, tanks and tools. 14:00 - Rig 54 on location. Spot on liners. Rig up KalCon Construction. Fill tanks with 10.2 state approved brine. Unhook flow lines from well head, rigged up flow line from half tank. 18:00 - Release rig crew until AM.

DAY: 2

REMARKS: 08/01/95: 7:00 am - On location, rigged up Halliburton to kill well. 1,000 psi on tubing. Pumped 55 bbl 10.2 brine down tubing. Filled casing 42 bbl. Nippled down tree. Nippled up BOP. Start out with tubing. Got out with tubing. Rigged up Halliburton Wireline. Making gauge ring and junk basket run. Ran in cement retainer and set at 8290'. Start in with tubing. Ran 5,000'. Shut in until morning.

DAY: 3

REMARKS: 08/02/95: 7 am - prepare to cut 5-1/2" casing below slips. Finish TIH w/tubing, tag cement retainer @ 8290'. RU Halliburton and Kal-Con, sting out of retainer and load hole w/115 bbls brine. Sting into retainer. Pump 25 sx Class H cement thru retainer, sting out of retainer and spot 25 sx Class H cement on top of retainer. Pull tubing to 7206'. Reverse circulate to fill hole and spot a 25 sx Class H cement plug from 7000'-7206'. TOOH w/tubing (stand back 70 stands-lay down rest). ND BOP's and tubing head. Spear 5-1/2" casing and attempt to pull but unsuccessfully. SDFN.

# DAILY REPORT CENTRAL PRODUCTION REGION COMPANY OPERATED August 4, 1995

#### WORKOVER/RECOMPLETION

Hersey Unit Miller 1-25 Osceola County, MI

AFE NO: AFE AMOUNT:

OPERATOR: Marathon Oil RIG: McConnell Rig 54

MOC/WI:

MIRU: 07/31/95

DAY: 4

REMARKS: 08/03/95: 7 am RU Enterra oilfield tools casing cutter, cut 5-1/2" casing 1' below slips and remove from hole. RU Halliburton Wireline and freepoint casing (no movement below 2500'). 50% @ 2200'. 70% @ 2000'. RU cutter and cut casing @ 2000'. RD Halliburton, RU casing tools, pull and lay down 2000' of 5-1/2" casing (49 full joints - 2 cutoffs). RD casing tools, TIH with tubing to 4400'. Radiator hose broke on rig, down for repairs. Finish TIH with 2-7/8" tubing to 5400'. SD for evening. Hal Fitch (DNR-Cadillac) was consulted concerning the cutting of the casing being shallower than planned and recommended changes to the rest of the plugging procedure which deviate from the original prognosis. 7 AM (8-4-95) Prepare to set final plugs and cap well.

#### DAY: 5

REMARKS: 08/04/95: Plugging complete. RU Halliburton and Kal Con, break circulation and spot a 50 sx Class A cement plug at 5400'. TOOH laying down tubing to 2046', where a 75 sx Class A cement plug was spotted. Tubing was pulled to 925' where a 100 sx Class A cement plug was spotted. TOOH to 50', spot a 15 sx Class A cement plug to surface, rig down and release Halliburton. Cut off head at ground level in cellar and weld a 1/2" steel plate on top, well number 1-25 and date 8-4-95 was etched in top of cap. RD completion unit and move to Grein 1-35, also move frac tank and 1/2 tank. SD for weekend. Following are top and bottom footage for individual cement plugs:

Plug spotted at 8290', 25 sx, top of plug at 8063' Plug spotted at 7200', 25 sx, top of plug at 7000' Plug spotted at 5400', 50 sx, top of plug at 4947' Plug spotted at 2000', 75 sx, top of plug at 1742' Plug spotted at 925', 100 sx, top of plug at 580' Plug spotted at 50', 15 sx, top of plug at surface.

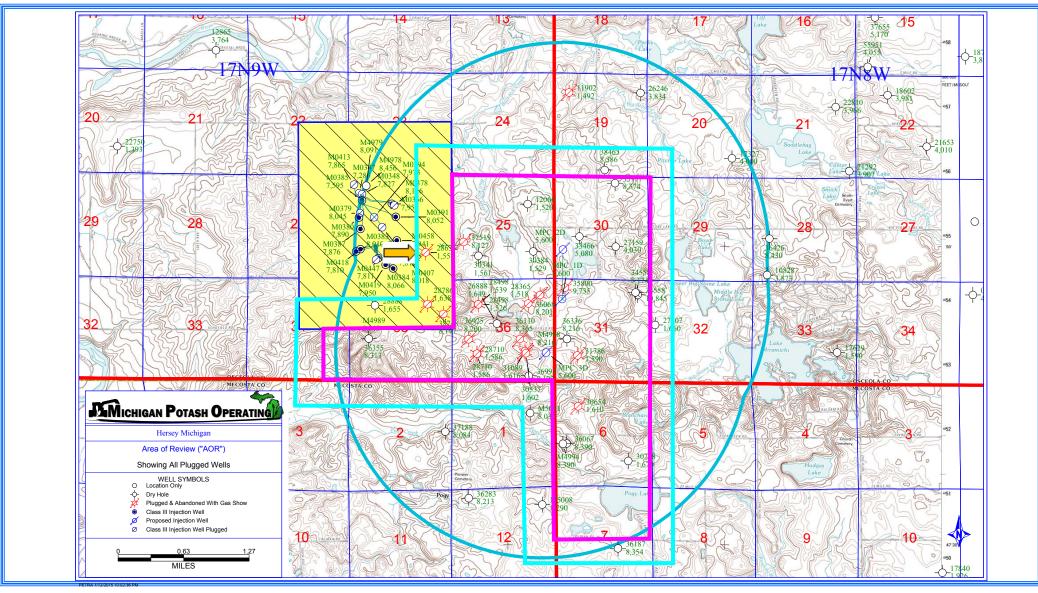


Figure B4. Map showing all plugged wells, shallow (that do not penetrate any confining horizon) or deep (that penetrate confining horzion) within the area of review. Total Depths are listed. There are several shallow Michigan Stray wells that do not penetrate the injection or confining horizon.

#### **PAINE 1-26**

## SE NE SE Sec 26 T17N R9W OSCEOLA COUNTY, MI

#### **CURRENT WELLBORE DIAGRAM**

**UPDATED APRIL 2014 BY JLT** API No. 21-133-37317-0000 GL @ 1124' KB @ 1140' **SURFACE CASING WELL COMPLETION DATE: 5/18/84** 625' 16"; 65#/ft. **PLUGGING COMPLETION DATE:** SET @ 625' KB CMT w/450 SX HOWCOLITE/100 SX CLASS A w/3% CaCl TO SURFACE 911' LOST HOLE PB TO SURFACE w/ PLUG @ 670' 250 SX HOWCOLITE CaCI PLUG @ 105' 175 SX CLASS A, 3% CaCI RIG SKIDDED 30' N AND NEW WELL DRLD ON SAME PAD 14-3/4" Hole **INTERMEDIATE CASING** 11-3/4"; 60#/ft. SET @ 911' KB CMT w/ 170 SX HOWCOLITE/200 SX CLASS A w/3% CaCI TO SURFACE 5408' PER TEMP SURVEY: TOP OF POOR CMT @ 630', TOP OF GOOD CMT @2030', PLUG @ 3033' TOP OF POOR CMT @ 40' 10-5/8" Hole **INTERMEDIATE CASING** LAST PRODUCING @ 296 MCFD OF GAS/DAY 8 5/8"; 32#/ft. SET @ 5408' KB CMT w/1100 SX HOWCOLITE/200 SX CLASS A w/2% CaCI TO SURFACE PROD. CASING 5-1/2"; 17#/ft. 7-7/8" Hole SET @ 8090' KB CMT w/300 SX HOWCOLITE w/18% SALT/425 SX POZMIX w/18% SALT/ 160 SX SPECIAL H TO SURFACE **BURNT BLUFF PERFS** 8026'-8045' (38x) **BURNT BLUFF REPERFS** 8024'-8044' (4spf)

> TD @ 8095' KB PB TO SURFACE (LOST HOLE)

#### **PAINE 1-26 WELL HISTORY**

	PAINE 1-26 WELL HISTORY
DATE	DESCRIPTION
1/5/1984	SPUD.
1/12/1984	LOST HOLE. PLUGGED BACK TO SURFACE. FIRST PLUG AT 670', 250 SX HOWCOLITE CaCI. SECOND PLUG AT 105', 175 SACKS, CLASS A, 3% CaCI. HAD CIRCULATION ON BOTH PLUGS, HOLE STAYED FULL. HAD 3 BARRELS CEMENT RETURN TO SURFACE ON SECOND PLUG. RIG SKIDDED ABOUT 30' N AND NEW WELL DRILLED ON SAME PAD.
2/15/1984	RUSC. MAKE GR RUN TO 8050'. ROH. RU 20' OF 2-1/8" THRU-TUBING PERFORATING GUNS LOADED TO SHOOT 4 SPF. RIH w/PERFORATING GUN. USING CCL, POSITION GUN TO PERFORATE 8024'-8044'. ONCE ON DEPTH, FIRE GUNS & ROH. RDSC. RETURN WELL TO PRODUCTION.
5/18/1984	PERFORATED 38 HOLES: 8026'-8045'
5/18/1984	WELL COMPLETED. FORMATION AT TD CABOT HEAD. PRODUCING FM BURNT BLUFF.  16" SET AT 625'; 450 SX HOWCOLITE/100 SX CLASS A w/3% CaCI  11-3/4" SET AT 911'; 170 SX HOWCO LITE/200 SX CLASS A w/3% CaCI  8-5/8" SET AT 5408'; 1100 SX HOWCOLITE/200 SX CLASS A w/2% CaCI  5-1/2" SET AT 8090'; 300 SX HOWCOLITE w/18% SALT/425 SX POZMIZ w/18% SALT/160 SX SPECIAL H

LAST PRODUCTION/DAY: 296 MCFD OF GAS

STATE OF MICHIGAN	TYPE OR PRINT
REQUEST FOR TRANSFER OF A PERMIT	PERIMIT NO WELL TYPE
SUBMIT 4 COPIES TO: Department of Natural Resources	37317 Gas
Geological Survey Division	FIELD NAME
Box 30028 Lansing, Michigan 48909	Hersey-Clinton WELL NAME AND NUMBER
Filing for change of ownership of well is required in accordance with Act	Paine 1-26
61, P.A. 1939 and Act 315 P.A. 1969, as amended, and Administrative	WILL COCATION
Rules promulgated thereunder.	SE 1/4 NE 1/4 SE 1/4 SECHON 26 T 17N R 9W
	TOWNSHIP COUNTY
TRANSFER OF A PERMIT FROM:	Hersey Osceola
NAME(S) OF SELLING OWNER(S)	
PPG 01] & Gas Co., Inc.  ADDRESS Number and Sireet — City or Town — State — Zip Code — Telephone	
One Jackson Square, Suite 600, Jackson, MI 492	201 (517) 782-8145
All operating rights are discharged by	
Owner(s) Representative(s)	Signiture(s) Date(s)
PPG Oil & Gas Co., Inc., Mr. Donald R. Hall	Dun Rh 12/14/87
Tra orra aus co., mer, bonara it. marr	pour A 17 1. 1. 1. 1.
ELIGIBILITY FOR PERMITS IS CONDITIONED UPON COMPLIANCE WITH	THE STATUTES, RULES AND ORDERS OF THE DEPARTMENT OF
NATURAL RESOURCES. PERMITS WILL NOT BE GRANTED TO PERSO	NS NOT IN COMPLIANCE.
NON-SUBMISSION AND/OR FALSIFICATION OF THIS INFORM	MATION MAY RESULT IN FINES AND/OR IMPRISONMENT.
TRANSFER OF A	A PERMIT TO:
NAME(S) OF ACQUIRING OWNER(S)	
Marathon Oil Company	
ADDRESS Number and Steekt City of Town State Zir, Code Telephone	222 (222) 222 222
One Jackson Square, Suite 600, Jackson, MI 49	
(We) (I) have acquired the well under this permit and assume full responsible way regulations and orders	oility for the drilling, operation, and abandonment in conformity with the
law, regulations and orders.	
SURETY BOND: SINGLE WELL ATTACHED BONDING	
BLANKET ON FILE BOND NE	JMBER5194219
All operating rights and responsibilities are assumed by	
Owner(s) Representative(s)	Signature(s) Date(s)
Marathon Oil Company, Mr. David W. Hoopman	Carriel W. Hoopman 12/16/87
That a direction of the company of the partie at the principal	come, vo. 190/smar-
FOR DEPARTMENT OF NATURA	AL RESOURCES USE ONLY
	12 112 112 112 112 112 112 112 112 112
	DISTRIBUTION BY DNR
	Lansing
00 0 1/1/	Acquiring Owner
APPROVED J. V. Sarrestowski 6	22/FB Selling Owner
Signature	Day

# Sir

# STATE OF MICHGAN DEPARTMENT OF NATURAL RESOURCES LOG OF OIL, GAS, DISPOSAL OR STORAGE WELL (ACT 81) Submit in DUPLICATE Within 30 Days after Well Completion

	PERMIT NUMBER
1	37317
	DESPENING PERMIT NUMBER

NAME(S) & ADDRESS OF OWNER(S) SHOWN ON PERMIT							NAME & ADDRESS OF DRILLING CONTRACTOR(S)										
2258	P.P.G. Oil & Gas Co., Inc. 2258 Enterprise Drive <b>JUN 2 8 1984</b> Mt. Pleasant, MI 48858							T. D. Provins Drilling Company, Inc. 2113 Enterprise Drive Mt. Pleasant. MI 48858									
LEASE NAME(S) & WELL NUMBER SHOWN ON PERMIT									easant.		41	Dis	ECTI			HLLE	Ď
	e #1-														<u> </u>		
SE //			SE/4	SECTION 26		TOWNSHI 17N		]	RANGE			TO	NNSH		A E		
FOOTAGES			·	20			est/West)		91/				Her	<u>-</u>		·	
				Line and	560		<u>E</u> ,	.ine	of overtee	7 mact	ion		-	eola			
SUBSURFA				SECTION		TOWNSHI	<del></del>		MANGE			TON	NNSH				<del></del>
FOOTAGES			_	1 ion and			lest/West)	مان مدن				co	INTY	NAME			
DRILLIN	G BEG			TOTAL	DEPTH OF WE	ILL	TYPE WE	LL				_		ELEV			
DAILLIN		PLE	YED		ION AT T.D.		FY. DALE	ias . –	ROTARY	TQ	) LS	K.8			M.F.		
2-16			_		t Head		From 0					1	140'		Į.	1139	,
E WELL CO	MPLET	ED		PRODUC	ING FORMA	FION(S)	FT. DALD	). —	CABLE T	001	\$	R.T.			Grd.	ت البات	
5-18	-84			Burn	t Bluff_		From		To			-			<u>l</u>	1124	!
	CASIN	3, C	asing Lin	ERS AND C	EMENTING						PERFC	RATIC	MS				
SIZE	W	HEF	RE SET	CEN	MENT	Ft. Pulled	DATE		NUMBER	1	(MTE)	TVAL		BATE	D.	0	EN
16"	62.	_		550		<u> </u>			HOLES	_						YES	NO
11 3/4"		_		370			5-18-	84	38_	80	26!	to 31	1451			X	Spenger
8 5/8"	540			1400	· · · · · ·	-	ļ			╁-		·····					
5 1/2"	809	<u>)                                    </u>		885		<del> </del>	<b></b>			+							
	<del></del>																<u></u>
FORMA			DIL OR GA		TO	,	ALL OTHE		OIL AND	343	SHUTE:		WHER				
Burnt B	uff		Gas	3014	8045	FORM	ATION O		R GAS	DEFTH		5em ptas	Sem- plas Order Pits Mud Line		Mud	Gas Fil) Log. Up	
						Nor	ie .	_		`							
		-			ļ					_						-	
	STIMU		DON BY A	CID OR FRA	CTURING		WAT	40	FILL UP	/E ! I	\ O8	OST C	I C. II	ATIO	W (1 C	1 (3)	
DATE			Treeted			· · · · · ·	FORM			<b>≠.</b> U.		DEP			AMO		
5-18-84	_		045'		20% Fe acid		None		P.O. JEG. DEPTH			Amount					
0 10 01	0020		010	300 ga 1	2010 1 0	ac id	n None										
																<del>,,</del>	
	MECHA	NIC	AL LOGS,	LIST EACH	TYPE RUN		DEPTH CO	R	ECTION	DE	VIATIO	on su	RVEY	PLI	JGGE	BAC	K.
Brand		(X)	LOG	TYPES	LOGGED IN	ITERVALS	DEPTH	CC	RRECTN	Rι	IN AT-	DEG	REE5	YES	NO	DEP	тн
Schlumberger		X	Sonic/		6400-80		12881		140						-	1	
Birdwell			DLL-ML		3250-80		33321	╁.	0°	<b></b>		-			-	+	
L DT/CNL		<u> </u>	<u>  100-809</u>	<u>45'</u>	78321	-	10	<u> </u>					+-	+			
R J		لببا		<del></del>				<u></u>		Ĺ		<u></u>		<u></u>			
OIL - 8644	day G	PAV	ITY - IA	COND.		AS - MCF/d	<del>:</del> -		Bbls/day	H <sub>2</sub> S	– Grain	H/100 (	u. ft.	8.H.I	. AND	DEP	r <del>H</del>
0			-	0		1155		0.			0			Est	. 46	71 @	80 <sub>4</sub>
I AM RESPO	NSIBLE	FOI	R THIS RE	PORT, THE	INFORMATI	ON IS COM	PLETE AN	0 C	ORRECT.		_ •						
DATE 6/21/8	4	1	NAME ANI	TITLE (PE	nnti hroeder -	Senior	Engine	<b>5</b> 16	GNATUR	Int	16 1	F 1	ch	111	de		

NOTICE REPORT COMPLETE SAMPLE AND FORMATION RECORD AND DRILL STEM TEST INFORMATION ON REVERSE SIDE

A - 7210 Rev. 3/77

# STATE OF MICHIGAN

DEPARTMENT OF NATURAL RESOURCES GEOLOGICAL CURVEY DIVISION

#### WELL PLIGING RECORD

(Submit in TRIPLI ATE Wit in 30 Days After Plugging is Co

Cosi	17	
Completed)	CAN 1	PERMIT NUMBER 1987317 LOST HOLD AN

		, 1	FIELD NAME	1984
COMPLETE NAME(S) AND ADDR	ESS OF WELL OWNER			
PPG Oil & Gas Co.,	Inc.			
COMPLETE LEASE OR FARM NA	ME(S)			WELL NUMBER
Paine				1-26
WELL LOCATION			TOWNSHIP	COUNTY
SE ½ NE ¼	SE % SEC. 26 T. 17N	₹ R. 9₩	Hersey	Osceola
TYPE OF WELL (Oil, Gas, Dry Hol	e, etc.)	TOTAL DEPTH	FORMATION	
Dry Hole (LOST H	OLE)			
DATE PLUGGING STARTED	DEPT. REPRESENTATIVE(S) WHO ISSUED PERMIT OR WITNESSED			
1-12-84	PLUGGING Discussed with Jack Snider			
CASIA	IG BECORD		BRIDGES OR	PLUGS

	CASING	RECORD	
SIZE CASING	DEPTH SET	AMOUNT RECOVERED	SHOT OR RIPPED
20"	77'	None	

	BRIDGES OR PL	ugs
TYPE (Brush, Stone, Cement, Mechanical, etc.)	DEPTH PLACED	SACKS OF CEMENT AND ADDITIVES
Cement	670-105	250 HOWCOlite
	105-0	175 Class A

Were tools, tubing, casing, etc., lost or left in the hole before or during plugging?	YES	[X]NO	If yes, give details:				
Did a Service Company pump mud, spot cement, or set bridge plugs?	X YES	□NO	If yes, give name and address: Halliburton				
Was the well plugged by a Company or Contractor other than Owner or Operator?	YES	<b>⊠</b> NO	If yes, give name and address:				
Representatives of Owner, Operator, Company, or plugging: Don Smith, Marvin Woods	Contractor v	vho witnessed					
Representatives of Owner, Operator, Company, or Contractor who witnessed plugging: Don Smith, Marvin Woods  DESCRIBE IN DETAIL HOW WELL WAS PLUGGED Flugged back to surface.  First plug at 670', 250 sacks HOWCOlite CaCl.  Second plug at 105', 175 sacks, Class A, 3% CaCl.  Ilad circulation on both plugs, hole stayed full. Ilad 3 barrels cement return to surface on second plug.  Rig skidded about 30' N and new well drilled on same pad.							
			(USE REVERSE SIDE IF NEEDED)				

	CERTIFICATION	
•	Owner or Operator to make this report; and re true, correct and complete to the best of	that this report was prepared under my supervision and direct find knowledge."
NAME AND TITLE (Typed or Printed)	Director, Exploration &	COMPANY NAME AND ADDRESS

Donald D. Metzger

Michigan Operations DATE (Month, Day, Year)

PPG 0il & Cas Co., Inc. 2258 Enterprise Drive Mt. Pleasant, MI 48858

OPERATORS USE		4
Description of Detail (cont.) or Other Supplemental Data:		4
	<del></del>	
		<u></u>
DEPARTMENT USE ONLY Supplemental Plugging Data and Site Conditions:		
1/30/84 rig skidded about 30'N and new well drld. on same pad. (M. MOSS)		
	<del></del>	
$-10\eta_{U_{0}}$		
1/010		
2861 D 2018	<del></del>	
- HAM	·	
The same	· · · · · · · · · · · · · · · · · · ·	
31307a.		
VEST DE LAND		

DIVISION	DATE
LAC.	1/20/84
Į	LAC.

#### STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES GEOLOGICAL SURVEY DIVISION

PERMIT NUMBER	Lost	holo
FIELD NAME		Marca

Perindles -- Orig & 1 copy Division Office - 2 copies field Office - File copy Others -- On request

INR DISTRIBUTION

PERMIT MAILED TO

PERMIT TO PLUG AND ABANDON

		• • • • • • • • • • • • • • • • • • • •		•		
AME AND ADDRESS OF	PERMITTEE					
EASE NAME AND WELL	NO.					
	Paine #1-26	TOGE LOLL				
OCATION (1/4 1/4 1/4 or of	her)	SECTI	юм		TOWNSHIP	COUNTY
	SE MP SE,		26 r	17n R Of	"orsey	Oscenla
YPE OF WELL (Oil, Gas	Ony Hole, etc.)	DATE COMPLETED	[0	ATE PLUGGING WILL START	PLUGGING PERMIT REQUES	TED BY & DATE
	Lost hole	<b>\1</b> /11/94		1/11/06	D. Smith 1/11	/34
AST PRODUCTION		<del>/</del>			PLUGGING TO BE DONE BY	
OPO C	8WPD	MCFGPD		DATE		

COPIES MAILED TO

CASING AND CEMENTING RECORD						
HOLE DIA	CASING DIA A WIJET.	DEPTHS SET	CEMENT QUANTITY, TYPE, ADDITIVES	CMT. TOP.	PERFORATIONS	
	67	. 12'				

#### GEOLOGIC DATA; GAS AND OIL BHOWS; DRILLING AND COMPLETION DATA:

T.D. 6531

#### PLUGGING REQUIREMENTS\*

Plugging requirements outlined are to be executed in accordance with the provisions of Act 61, P.A. 1939, as amended, and rules and orders adopted thereunder.

Spot 425 sm cost from T.D. to surface. Objection.

# GEOLOGICAL SURVEY

JAN 2 3 1984

Regulatory Control Unit

\*NOTE: BONDS CANNOT BE RELEASED UNTIL A PLUGGING IS COMPLETED, CELLAR RAT HOLE AND PITS FILLED, WELL SITE RESTORED AND RECORDS FILED, WATER WELLS MUST BE PLUGGED ACCORDING TO RULE 166 OF ACT 294 P.A. 1965, "GROUND WATER QUALITY CONTROL". It is further made a requirement of this permit that the applicant give notice to the public utilities in accordance with Act 53, P.A. 1974 C.L. 460 701 to 460.718 and comply with each of the requirements of the act.

Sur Mail Rul	Office Cadillac TA6	DATE 1/12/84
MI WALL TO THE	L	

	STATE OF DEPARTMENT OF NA GEOLOGICAL SU	TURAL RESOURCES		PERMIT NO.		Typ	PE OF WELL	
	BOX 3 LANSING, MIC	30028		37317			Gas	<u> </u>
REQUIRED BY AUTHORITY OF:  ACT 61, P.A. 1939, AS AMENDED ACT 315, P.A. 1969, AS AMENDED  APPLICATION TO (Submit 4 copies):  CHANGE WELL STATUS PLUG AND ABANDON				Marathon Oil Company P.O. Box 68 Jonesville, MI 49250				
NON-SUBMISSIO	N AND/OR FALSIFICATION OF	_						
CHANGE OF WE	ELL STATUS REQUESTED FO	A .		FIELD/FACILITY NAME Hersey Un				
PLUG BA	ACK   EXTEND PLUG	GGING (T.A.)	Ø PERFORATE ☐ OTHER	WELL NAME Paine			WELL	NO. 1-26
☐ ACIDIZE (315 ONLY) ☐ FRACTURE (315 ONLY)				WELL LOCATION SE . 1/4 of	NE % of SE	1/4 Se	ection 26	T 17N R 4W
LAST PRODUCTION / INJECTION AND TYPE OF FLUID  (Anyount per day 8 :njection pressure)				township Hersey		COL	Osceola	
296 MCFD of Gas				DATE DRILLING CO	OMPLETED		rrently P	
work to be done by: Tapproval mailed  To be Determined						STA	RTING DATE	
			CASING AND CE	MENTING RECO	RD			
HOLE DIA.	CASING DIA & WT./FT	DEPTHS SET		ENT QUANTITY, TYP	SX Class A V	7/3%	CMT. TOP	PERFORATIONS
14-3/4"	11-3/4", 60#	911'	,	•	sx Class A			
10-5/8"	8-5/8", 32#	5408		•	sx Class A			% 8026~45
7-7/8"	S-1/2", 20#	8090		) lite w/18	% salt/425 s		sx Specia	
RUSC. Ma shoot 4 s	ke GR run to 80 pf. RIH w/perf fire guns & RO	orating gun.	Using CCL,	position g	un to perfor	ratin cate	g guns 10 8024'-804	oaded to 54', Once
	ū					SICA	L SURVE	:γ
								• •
					Ff	EB 1	1 1992	
					Permits	& B	onding U	nit
DNR ADDITIONAL	REQUIREMENTS:							
NAME/SIGNATUR	E (Authorized Representative)	ican Draduct	ion sunt 7	m Da	m. ch		DATE /	3192
APPROVED BY C	iels, Jr., Mich		office	VV VVC	APPROVAL DATE	<del>-</del>		TION DATE
	michael !	Miss				992		

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MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY - GEOLOGICAL SURVEY DIVISION

Permit number | Well type | Current

REQUEST FOR TRANSFER OF PERMIT		1000	10000	a debru
	37317	Gas	8090	<del></del>
Required by authority of Part 615 Supervisor of Wells or Part 625	Well name and nul	mber		
Mineral Wells, Act 451 PA 1994 as amended. Non-submission and/or	Paine 1-26			
falsification of this information may result in fines and/or imprisonment.	Surface location			
	SE 1/4 NE	1/4 SE 1/4	Section 26 T 1	7N R9W
Part 615 Oil/Gas Well Part 625 Mineral Well	Township		County	
_	Hersey		Osceola	
NOTE: Eligibility for permits is conditioned upon compliance with the statu	tes, rules and orders o	of the Department of E	nvironmental Quality.	Permits shall
not be transferred to persons not in compliance. A permit for a well shall n				isfactory
conditions at the well site until compliance is achieved. The acquiring perr				
This permit does not convey property rights in either real estate or r private or public rights nor does it waive the necessity of seeking fed				
			Other state statutes.	<del></del>
	OF A PERMIT FROM	<u>M:</u>	Fed. I.D.# or S.S.#	4
Name(s) of Selling Permittee(s)				
Marathon Oil Company			25-1410539	
Address: Number and Street, City or Town, State, ZIP Code Telephone				
7301 NW Expressway			(405) 720-7373	3
Oklahoma City, OK. 73132				
All permits rights and responsibilities are discharged by:				
		11 . 11	1 -	ı
Marathon Oil Company Charles A. Paulson		april for		3/2/20
Permittee Authorized representati		Signati	ure	Date
		• •		
Permittee Authorized representati	no nama	Signati	Iro	Date
remittee Addionated representati	ive name	Signati	oi e	Date
Permittee Authorized representati	ve name	Signati	ure	Date
TRANSFER C	OF A PERMIT TO:		<del></del>	
Name(s) of Acquiring Permittee(s):		•	Fed. I.D.# or S.S.#	
RSEC, L.L.C.			84-1533899	
Address: Number and Street, City or Town, State, ZIP Code			Telephone	
1000 1745 044 04 0250				
1200 17th Street, Suite 2350				
•		(3	03) 892-5616	
Denver, CO_80202	all under this permit an		03) 892-5616 sibility for the drilling,	operation, and
Denver, CO 80202 (We are) (I am) an owner or authorized representative of the owner of the we	ell under this permit an			operation, and
Denver, CO 80202  (We are) (I am) an owner or authorized representative of the owner of the we abandonment in conformity with the law, regulations and orders.	all under this permit an			operation, and
Denver, CO 80202  (We are) (I am) an owner or authorized representative of the owner of the we abandonment in conformity with the law, regulations and orders.  BOND: Single Well Attached Surety or Bank		nd assume full respon		operation, and
Denver, CO 80202  (We are) (I am) an owner or authorized representative of the owner of the we abandonment in conformity with the law, regulations and orders.  BOND: Single Well Attached Surety or Bank Blanket On File Bond Number Per	all under this permit an			operation, and
Denver, CO 80202  (We are) (I am) an owner or authorized representative of the owner of the we abandonment in conformity with the law, regulations and orders.  BOND: Single Well Attached Surety or Bank Blanket On File Bond Number Per Statement of Financial Responsibility		nd assume full respon		operation, and
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We are) (I am) an owner or authorized representative of the owner of the we abandonment in conformity with the law, regulations and orders.  BOND: Single Well Attached Surety or Bank Blanket On File Bond Number Per Statement of Financial Responsibility  All permittee rights and responsibilities are assumed by:  RSEC, L.L.C. Steve Swanson MAN Permittee Authorized representative  Permittee Authorized representative  Permittee Authorized representative  Permittee Authorized representative	nding  Marc  name  name  name  name  NONMENTAL QUA	Amount Signature Signature Signature AY 3 1 2001	re stribution by DEQ Cansing Selli	Date Date
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MICHIGAN DEPT OF ENVIRONMENTAL QUALITY PO BOX 30256 LANSING MI 48909-7756

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MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY - GEOLOGICAL SURVEY DIVISION

DECL	mornost	DEFARIMENT OF ENVIRONMEN	Permit number	Well type	Current true ve	ortical depth
REQUEST	FOR TRAN	SFER OF PERMIT	37317	Gas	8090	
			Well name and num			
		pervisor of Wells or Part 625 ended. Non-submission and/or	Paine 1-26			
		ett in fines and/or imprisonment.	Surface location			-1311 -011
-			SE 1/4 NE	1/4 SE 1	14 Section 26	TI/N R9W
Part 615 0	Dil/Gas Well	Part 625 Mineral Well	Township		County	
NOTE: Eliabilità de -	armite is essettion-	d upon compliance with the statute	Hersey	the Denominant of	Osceola  Environmental Qui	ality. Permits shall not
be transferred to pers	ermits is conditione ons not in complian	o upon compliance with the statute ce. A permit for a well shall not be	es, rules and broefs of transferred if the per	mittee is under notic	ce because of unsi	atisfactory conditions
at the well site until co	mpliance is achieve	ed. The acculring permittee shall a	attach a current Organ	nization Report (EQI	P 7200-13)	
This permit does not be received an arrivate or public right	ot convey property	rights in either real estate or m ve the necessity of seeking fede	aterial nor does it at real and local normits	ithorize any injury s or complying wit	to private proper is other state stat	ty or investor of
private or pasito rigi	to not boos it was			_		
Name(s) of Selling Pe	mittee(s)	INANSPERO	F A PERMIT FROM	т	Fed. I.D.# or	\$.S.#
RSEC, L.L.C.					84-15338	399
	Street, City or Tow	m, State, ZIP Code Telephone				
1200 17th St	reet, Suite	2350			(000) 5	00 5616
Denver, CO	80202			^	(303) 89	32-5010
				_/}		
All permits rights and	responsibilities are	discharged by:		$\coprod$		
Dere III		Chave Cyanaan		X		elsm
RSEC, L.L.C.	nittee	Steve Swanson  Authorized representation	ie name	Sign	ature	Date
7 011	· Macc	Authorized representation	re name	U presia	ent	
Pén	nittee	Authorized representativ	e name	Sign	ature	Date
		•				
					_	
Реп	rrittee	Authorized representative	e name	Sign	enuta	Date
Manager Control	D	TRANSFER	OF A PERMIT TO:		Fed. I.D.# or	CC#
Name(s) of Acquiring					84-0918	
Whiting Petr Address: Number and					Telephone	
1700 Broadwa	•					
Denver, CO		,,,		(303) 837-1661		
		presentative of the owner of the w	ell under this permit a	nd assume full resp	ponsibility for the d	rilling, operation, and
abandonment in confo	rmity with the law,	regulations and orders.				
BOND: D Single			avelers Casua		Co.	
☑ Blanker			3847277	Amount	\$250,000	
***	ent of Financial R	•				
All permittee rights an	o responsibilities ar	e assumed by:				
	6	day laws T. Days	(	Y -	-( \( \)	0-15-0
hiting Petrol	eum Corporai <del>nittee</del>	tion James T. Brown Authorized representative	na name	Son Son	ature	8-/5-62 Date
		ried Articola Tepreseriada		J		
Perr	nittee	Authorized representativ	re name	Sign	ature	Date
Perr	nittee	Authorized representative	re name	Sign	ature	Date
	F	OR DEPARTMENT OF ENVI	RONMENTAL QUA	LITY USE ONLY	<u> </u>	50
	0 20		D.C.	0.1.0.0	Distribution by D	EQ Selling Owner
Approved Da		<b>`</b>	111	7 · 1 U 70774	THAN I SHUZINO	
	ma ky	Jam	<u> </u>	<u>C 1 9 2002</u>	1 2 =	_
<del></del>		Signature		Date	Field [	Acquiring Owner

EQP 7200-7 (Rev 3/99)

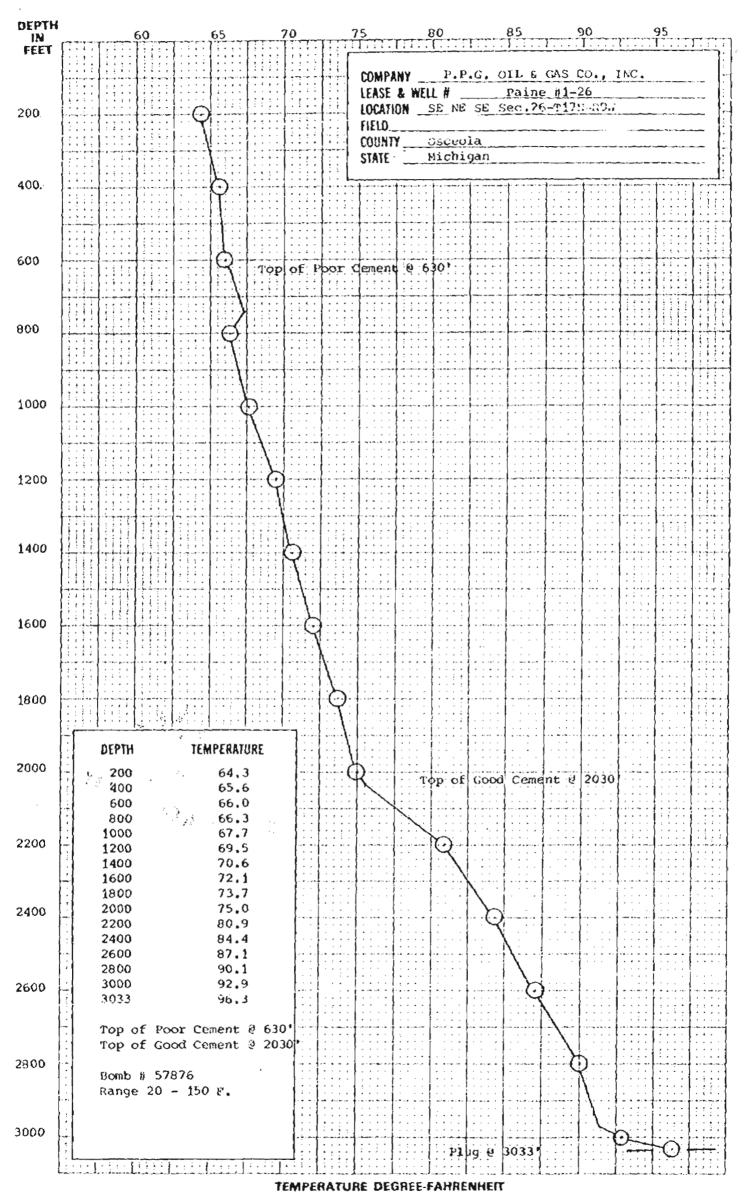
Mail Original and 3 copies to:

GEOLOGICAL SURVEY DIVISION MICHIGAN DEPT OF ENVIRONMENTAL QUALITY PO BOX 30256 LANSING MI 48909-7756

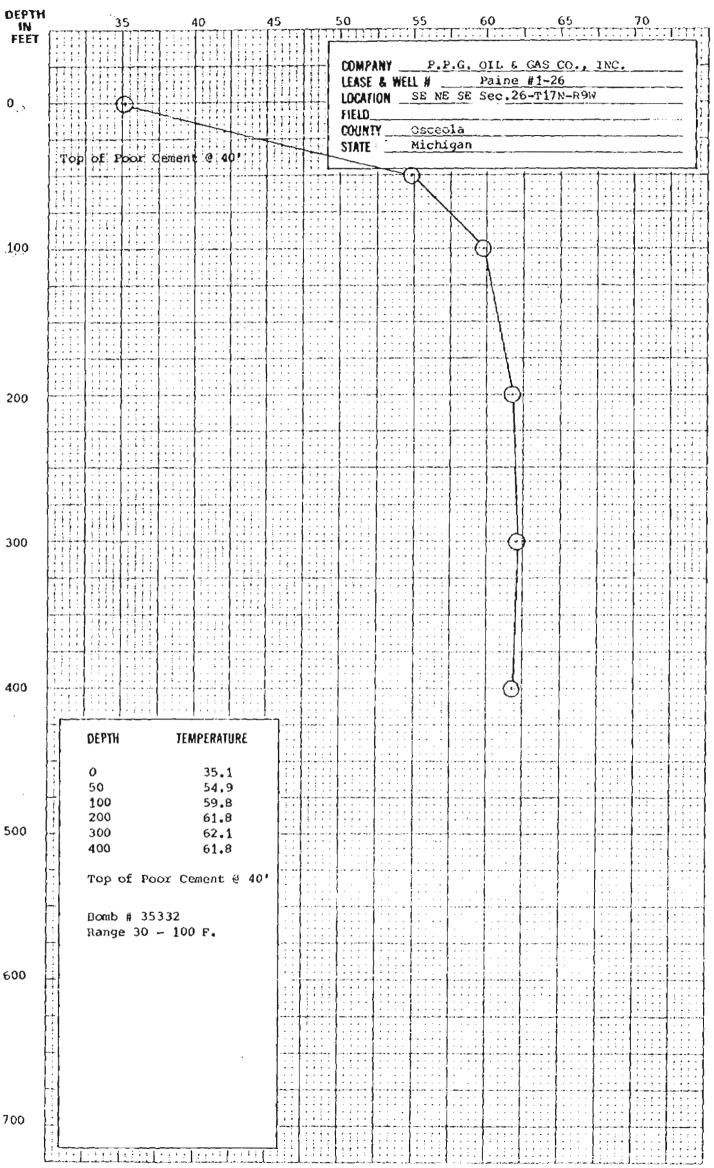
AUG 2 8 2002

**GEOLOGICAL SURVEY** 

## **TEMPERATURE SURVEY**



## **TEMPERATURE SURVEY**



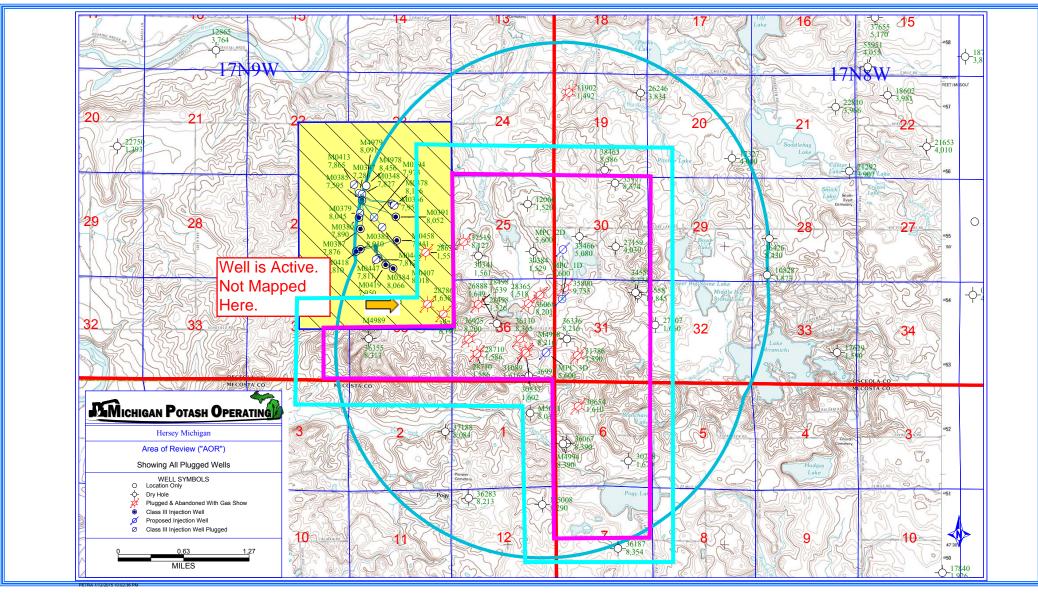
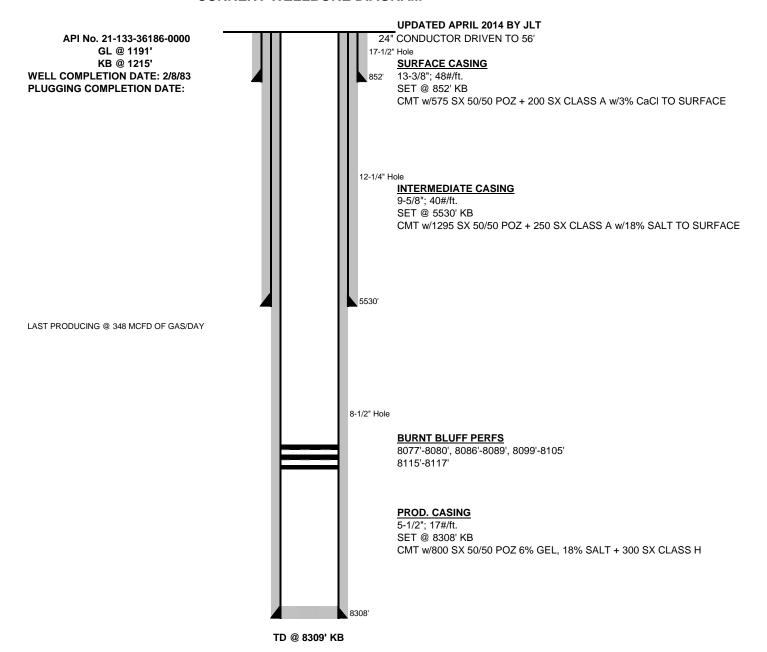


Figure B4. Map showing all plugged wells, shallow (that do not penetrate any confining horizon) or deep (that penetrate confining horzion) within the area of review. Total Depths are listed. There are several shallow Michigan Stray wells that do not penetrate the injection or confining horizon.

### **PAINE 1-35**

## NE NW NE Sec 35 T17N R9W OSCEOLA COUNTY, MI

### **CURRENT WELLBORE DIAGRAM**



### **PAINE 1-35 WELL HISTORY**

<u>DATE</u> 11/6/1982	DESCRIPTION SPUD.
12/24/1982	RUSC. MAKE GR RUN TO 8117'. ROH. RU 19' OF 2-1/8" THRU-TUBING PERFORATING GUNS LOADED TO SHOOT 4 SPF. RIH w/PERFORATING GUN. USING CCL, POSITION GUN TO PERFORATE 8086'-89', 8099'-8105'. ONCE AT DEPTH, FIRE GUNS & ROH. RDSC. RETURN WELL TO PRODUCTION.
2/8/1983	WELL COMPLETED. FORMATION AT TD CINCINNATIAN. PRODUCING FM BURNT BLUFF. 24" CONDUCTOR DRIVEN TO 56' 13-3/8" SET AT 858'; 575 SX 50/50 POZ + 200 SX CLASS A w/3% CaCl 9-5/8" SET AT 5525'; 1295 SX 50/50 POZ + 250 SX CLASS A w/18% SALT 5-1/2" SET AT 8308'; 800 SX 50/50 POZ 6% GEL, 18% SALT + 300 SX CLASS H

PERFORATIONS: 8077'-8080', 8086'-8089', 8099'-8105', 8115'-8117'

LAST PRODUCTION/DAY: 348 MCFD OF GAS

## STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES

## LOG OF OIL, GAS, DISPOSAL OR STORAGE WELL (ACT 61) Submit in DUPLICATE Within 30 Days after Well Completion

PERMIT NUMBER	
36186	
DEEPENING PERMIT NUMBER	

								{								
NAME(SI & A	DORES	ss o	FOWNERIS	S) SHOWN O	NPERMIT			ME & ADDRESS OF DRILLING CONTRACTOR(S)								
Willn	net,	Ind	c.			1	T. D. Provins Drilling Company 2113 Enterprise Drive									
2250	Ente	rpi	rise Dri	ive		-		•								
Mt. I			t. MI 48				Mt.	Mt. Pleasant, MI 48858								
Paine				SHOWN ON	PERMIT					1	s 🔲	_		LEO		
SURFACE LO				SECTION		TOWNSHIP	WNSHIP RANGE					TOWNSHIP NAME				
NE NV				}	35	1	7N	9	W	Hersey						
FOOTAGES						(Ea	est/West)			co	COUNTY NAME					
				ine and 8	52		West Li		er section	1	Osceola					
SUBSURFAC	E LOCA	4710	N	SECTION		TOWNSHIE	•	RANGE		TO	WNSHIE	NAME				
FOOTAGES		Nor	th/South)	<u></u>		(6.	ast/West)			1	UNTYN	LAME				
				.ine and				ine of quar	er section		ONTT	MINIC				
ORILLING					PTH OF WE		TYPEWELL									
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ADRILLING		LET	ED	1	ON AT T.D.		FT. DALD.			K.E			₹.F.			
T 12-21				}	innatian		From				121	5	1	213		
WELL COM		ED			NG FORMAT	ION(S)	FT. DALD.			R,T	r		Grd.	191		
2-8-				l Burn	C BIUII		From	то						. 71		
CASING, CASING LINERS AND CEMENTING PERFORATIONS																
SIZE	W	HER	E SET	CEME	ENT	Ft. Pulled		NUMBE						OPE		
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9 5/8"			30'	2400			1-15-8	$3 \left( \frac{2x}{f} \right)$			, 86-	89,		XX		
5 1/2"		830	781	1100	Sx				99	99-8105						
			PAY INTE				ALL OTHE	R OIL AND	GAS SHOW	s obs						
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Burne bi	LULI	+	oas	0070		Reed Ci	ty Zn	Gas					Line	Log.	Uρ	
		$\top$				Sour Zo		Gas 4710						X		
						Manitou	lin	Gas	8240					X		
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			······						P (F.U.) OR							
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							\ [		+	<del> </del>						
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Schlumberger		XX.	Sonic	<del></del>	200 8				3200		/2°		<del> </del>	<del> </del>		
Birdwell			LDT-CNI DLL-MLI		200 - 8 3300- 8	- 1		<del> </del>	3800 5850		/2° 1/2°		<del>                                     </del>	<del> </del>		
McCull.		XX	Bond Lo		.5500	507			7032		1/4°		<del> </del>	<del> </del>		
La Janes Galland		المعتب			PR	ODUCTION	TEST DAT	Α	<u> </u>		-1-1	<u> </u>	د حا			
OIL - Bbis/c	Jay G	RAV	ITY - OAP	I COND. B					y H <sub>2</sub> S Gra	ins/100	cu. ft.	B.H.P	. AND	DEP.	าั <b>ผ</b> ั	
	-	-				3000		Bb1s				4702	2-80	97		
I AM RESPON	SIBLE	FOI	R THIS REF	PORT. THE	INFORMATI	ON IS COM	PLETE AN	CORREC	т.			<del></del>				
DATE 2-21-8	33	T	NAME AND Willia	TITLE (PR	oker, Ge	olgoist		SIGNATA	RE		Ro	s b				

	ATE UT MICH	_		TYPE ON PRINT							
, HEQUEST FOR	TRANSFER	OF A PERMIT		PERMIT NO	WELL TYPE						
UBMIT 4 COPIES TO	•	of Natural Resources		36186	Gas						
	Box 30028	iurvey Division		Hersey-Clinton							
		chigan 48909		WELL NAME AND NUMBER							
iling for change of ownersh 1, P.A. 1939 and □Act 35				Paine 1-35							
ules promulgated thereunder				NE 1/4 NW 1/4 NE 1	1/4 SECTION 35	, 17N	<sub>R</sub> 9W				
				TOWNSHIP		COUNTY					
TRANSF NAME(S) OF SELLING OWNER(S)	FER OF A PE	RMIT FROM:		Hersey		Osceola					
PPG Oil & Gas Co				·							
One Jackson Squa	•			N1 /517) 702_0	2145						
All operating rights are discharged		out, dackson, MI	432	01 (517) 782-8	3143						
Owner(s)		Representative(s)		Signiture(s)		Date(s)					
PPG Oil & Gas Co	Inc M	lr. Donald R. Hal	1	$\mathcal{D}_{\epsilon}$	~ Rh	- 12/14/1	87				
	, 110, ,	The bolland At that	<del>:</del>	- Dame							
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ELICIDILITY FOR DEPLATE	LC COMPITIO	AICO LIDONI CONTRILIANICI	- W/1711	THE CTATUTES BUILDS A	AND OPPOSE OF	THE OCCAPTA	CNT OF				
NATURAL RESOURCES. P				THE STATUTES, RULES A	IND CHOCHS OF	THE DEPARTM	ENT OF				
TATORAL RESCONCES. P	EVINIA ANITE	NOT BE GRANTED TO	rensul	45 NOT IN COMPLIANCE.							
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NUN-SUBMISSI	ON AND/OR F			ATION MAY RESULT IN FIN	NES AND/OR IMPR	ISONMENT.					
NAMEIS) OF ACQUIRING OWNERS	C1	TRANSFE	R OF A	PERMIT TO:							
					-						
Marathon Oil Comp ADDRESS Number and Street		State - Zu Code Tetephon					<del>.</del>				
One Jackson Squa	are, Suite	600, Jackson, M	I 49	201 (517) 782-8	145	•					
				pility for the drilling, operation	<del></del>	nt in conformity	with the				
law, regulations and order	rs.										
				CO SAFECO Insuran	re Company	of America					
	INGLE WELL	<u>.</u>	ONDING	F104010	ce company	UI Aller ICa					
<u>~</u> 84	LANKET	ON FILE BO	OND NU	MBER							
All operating rights and re	esponsibilities :	are assumed by									
Owner(s)	•	Representative(s)		Signature(s)	)	Date(s)					
				121-71		10/11/01					
Marathon Oil Comp	pany, Mr.	David W. Hoopman		N. W. Hoopman		12/16/87					
<u> </u>											
		FOR OFFICE OF	NA TUD	AL PECOLIDORS LICE CANAL							
	<del></del>	FOR DEPARTMENT OF	NA TUR	AL RESOURCES USE ONLY							
					DISTR	RIBUTION BY DN	IR .				
		$\sim$			<b>≥</b> Lor	ารเกด					
nn	1			/ /		uiring Owner					
APPROVED	Lane	Krento		12+1+8	☐ Sell	ling Owner	l				
	187	Signature		Dat	□Fiel	d					

	STATE OF CEPARTMENT OF NA GEOLOGICAL SU BOX 3	TURAL RESOURCES		PERMIT NO.		TYPE OF WE	ill				
	LANSING, MIC	HIGAN 48909		36186		Gas			<del>n</del> —		
REQUÍRED BY AL	JTHORITY OF:			NAME AND ADDRESS OF	F WELL OWNER	APPROVAL N	AAILED		Ø		
ACT 61, P.A.	1939, AS AMENDED	ACT 315. P.A. 1	969, AS AMENDED	Marathon 01	1 Company				<b>1</b>		
APPLICATION	N TO (Submit 4	copies):		P.O. Box 68							
	•	•		Jonesville,	MI 49250				1997		
CHANGE WE		PLUG AND A							_		
NON-SUBMISSION A AND/OR IMPRISONN	ND/OR FALSIFICATION OF MENT,	THIS INFORMATION MA	LY RESULT IN FINES	FIELD/FACILITY NAME							
CHANGE OF WELL	STATUS REQUESTED FO	<del></del>		Hersey Unit							
1	EXTEND PLU		E PERFORATE	WELL NAME	NO.						
CONVERT T	O INJECTION OR	DISPOSAL WELL	☐ OTHER	Paine	-35						
ACIDIZE (31	5 ONLY) [	FRACTURE (31	ONLY)	WELL LOCATION NE . 14 O! NW	4 of NE 4	Section	35 T	17N	R 9W		
	/INJECTION AND TYPE C	X FLUID		TOWNSHIP		COUNTY					
tAmount per day &	injection pressure)			Hersey		0s	ceola	<b>a</b>			
B48 MCFD of	Gas			DATE DRILLING COMPLE	TED	DATE LAST		o/utilize Prodi			
WORK TO BE DON	E BY: APPROVAL MA	ul EO		12-24-82		STARTING D		11000	Jerne		
To be De	_	CLED				SIANIMO D	AIE				
	- Col mario d		MENTING RECORD	d							
HOLE DIA.	CASING DIA. & WT /FT	DEPTHS SET	CEN	MENT QUANTITY, TYPE, AD	DOITIVES	CMT.	TOP	PERI	FORATIONS		
1.7.1/01	0.01011 1011	0.501	F 7 F 60 / F	0 b. (200 0	7 A/79	CoCI					
	3-3/8" <u>, 48#</u> -5/8", 40#	858' 5525'		0 Poz/200 sx C 50 Poz/250 sx							
	-1/2", 17#	8308'		0 Poz 6% gel,				8077-	80,86-8		
	D (Formation and depth.		····			ass "H'	******	8099-	8105		
See Attac	hment										
DETAIL PROPOSED							•				
shoot 4 spf	. RIH w/perf	orating gun.	Using CCL,	1/8" thru-tubi position gun Return well to	to perforat	te 8086	ns 10 '-89'	, 809	9'-		
					GEOLOGIC	AL SUF	RVEY	•			
					FES 2	8 1992					
DNR ADDITIONAL RE	EQUIREMENTS:				Permits & f	Bonding	uni	t			
						·					
	Authorized Representative)	ican Draduct	ion Sunt	m Dan	ush	D	MTE 2	131.	92		
APPROVED BY NO	ls. Jr. Mich		office		WAL DATE	<del>-</del>	ERMINAT	TON DATE	<u> </u>		
	Micelall!	1. Wass	<del>.</del>		FEB 1 0 199						

NOTE: THREE COPIES OF WELL PLUGGING OR REWORK (PR 7200-8) ARE TO BE FILED WITHIN 30 DAYS OF COMPLETION.

### DEG

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY - GEOLOGICAL SURVEY DIVISION

## REQUEST FOR TRANSFER OF PERMIT

Required by authority of Part 615 Supervisor of Wells or Part 625 Mineral Wells, Act 451 PA 1994 as amended. Non-submission and/or falsification of this information may result in fines and/or imprisonment.

Part 615 Oil/Gas Well Part 625 Mineral Well

Permit numbe 36186	r We	eil type as	Current true vertical depth 8308							
Well name an	number									
Paine #1-3	5									
Surface locati	on									
NE 1/4	NW 1/4	NE	1/4	Section 35	T 17N	R9W				
Township				County						
Hersey			ļ	Osceola						

NOTE: Eligibility for permits is conditioned upon compliance with the statutes, rules and orders of the Department of Environmental Quality. Permits shall not be transferred to persons not in compliance. A permit for a well shall not be transferred if the permittee is under notice because of unsatisfactory conditions at the well site until compliance is achieved. The acquiring permittee shall attach a current Organization Report (EQP 7200-13) This permit does not convey property rights in either real estate or material nor does it authorize any injury to private property or invasion of

private or public rights nor does it waive the necessity of seeking federal and local permits or complying with other state statutes.

	ERMIT FROM:					
		Fed. I.D.# or \$.\$.#				
	25-1410	539				
n, State, ZIP Code Telephone						
	(405) 72	0-7373				
lischarged by:						
Charles A. Paulson Authorized representative name		5/4/ Date				
Authorized representative name	e Signature	Oate				
Authorized representative name	e Signature	Date				
TRANSFER OF A PE	RMIT TO:					
		S.S.#				
	84-1533	18 <del>9</del> 9				
	Telephone					
50						
	(303) 892-5	616				
ulations and orders.	this permit and assume full responsibility for the	drilling, operation, and				
	Amount					
	Amount					
•	()					
sauriou by.	₩.	1.				
Steve Swanson, Managen	<b>~</b>	Spelso				
Authorized representative name	Signature	Date				
Authorized representative name	Signature	Date				
	Authorized representative name  Authorized representative name  TRANSFER OF A PE  State, ZIP Code  State, ZIP Code  State of the owner of the well under ulations and orders.  d Surety or Bank Bond Number Pending sponsibility ssumed by:  Steve Swanson, Manager	discharged by:  Charles A. Paulson Authorized representative name  Authorized representative name  Signature  Authorized representative name  Signature  TRANSFER OF A PERMIT TO:  Fed. I.D.# or 84-1533 Telephone  State, ZIP Code  State, ZIP Code  Seentative of the owner of the well under this permit and assume full responsibility for the culations and orders.  d Surety or Bank Bond Number  Pending Amount  Ponsibility  Pending Amount  Ponsibility  Pending Amount				

MAY 3 1 2084 Lansing Selling Owner Field Acquiring Owner **Date** Signature

EQP 7200-7 (Rev 3/99)

Mail Original and 3 copies to:

GEOLOGICAL SURVEY DIVISION MICHIGAN DEPT OF ENVIRONMENTAL QUALITY PO BOX 30256 LANSING MI 48909-7756

<b>D.CO</b>	MICHIGAN DED	ARTMENT OF ENVIRONME	NTAL OLIALITY	Y . GEO!	OGICAL SUE	RVEY D	IVISION		
DECL	MICHIGAN DEM	JUSTINETAL OF CHAILOUME	Permit num		Well type		Current true	vertica	depth
REQUEST	FOR TRANSFE	P OF PERMIT	36186		Gas		8308		
NEWOES!	I OK HOMOLE		Well name a	nd numb			1111		
	rity of Part 615 Supervis		Paine #						
		d. Non-submission and/or	Surface loca						
raisincation of this info	mation may lesuit in it	ines and/or imprisonment.	NE 1/4		1/4 NE	1/4	Section 3	5 T	17N R 9W
X Part 615 Oil	Incae Well	Part 625 Mineral Well	Township			The party of the last of the l	County		
M I WILL OUT OIL	JOAS WEII	I WILL OF O IANII OLDE 1 4 400	Hersey				Osceola		
at the well site until con This permit does not	ns not in compliance. A npliance is achieved. T t convey property righ	on compliance with the statum of permit for a well shall not be the acquiring permittee shall that in either real estate or re e necessity of seeking fed	tes, rules and o be transferred if lattach a currer material nor do leral and local	the permit Organi es it aut permits	nittee is under zation Report thorize any it or complying	nosice (EQP 7 njury to	pecause of u 200-13) private pro	perty o	cory containors Invasion of
		TRANSFER (	OF A PERMIT	FROM	L		Fed. I.D.#	~ 6 6 7	<u> </u>
Name(s) of Selling Perr	nittee(s)						84-153		•
RSEC, L.L.C.							04-100	3033	
		ate, ZIP Code Telephone							
1200 17th Str	eet, Suite 235	Ŋ					(202)	002 1	2616
Denver, CO 8	0202				•		(303)	892-	2010
					()				
All permits rights and re	sponsibilities are disch	arged by:			V				
				5	<b>F</b>				alela
RSEC, L.L.C.		Steve Swanson							012105
Permi	au <del>se</del>	Authorized representat	ive name	(	PRESID	eat			
Permi	filee	Authorized representat	ive name	<del>-</del>		Signatu	не		Date
Pem	ittee	Authorized representat	ove name			Signati	ire		Date
		TRANSFER	OF A PERM	IT TO:					
Name(s) of Acquiring P	ermittee(s):			· · · · · · ·			Fed. I.D.#		
Whiting Petro	leum Corporati	on			_		84-09	18829	
Address: Number and S	Street, City or Town, St.	ate, ZIP Code					Telephon	ė	
1700 Broadway	. Suite 2300						4 >		
Denver, CO 8						_	(303)	837-	1661
		entative of the owner of the	well under this	permit ar	nd assume ful	respo	esibility for th	e drilling	, operation, an
(AAG NIG) (I BILL) NI OMIN		- P'							
abandonment in confor	mity with the law, reguli	ations and orders.							
abandonment in conformation SOND: Single V	<u>—</u> .		ravelers	Casua <sup>°</sup>	lty Sure	ty Co	)		
abandonment in confor	<u>—</u> .	Surety or Bank	ravelers 03847277	Casua	ty Sure	ty Co n \$2	50,000		
abandonment in conformation SOND: Single Volume Blanket	Vell Attached	Surety or Bank		Casua	lty Sure Amou	<u>ty Co</u> m <u>\$2</u>	50,000		
BOND: Single V Blanket	vell ☐ Attached ☐ On File nt of Financial Respo	Surety or Bank T Bond Number 1 onsibility		Casua	lty Sure Amou	t <u>y Co</u> m <u>\$2</u>	50,000		
abandonment in conformation SOND: ☐ Single Volume Blanket ☐ Statement	vell ☐ Attached ☐ On File nt of Financial Respo	Surety or Bank T Bond Number 1 onsibility		Casua	lty Sure Amou	ty <u>Cc</u> m \$2	50,000		
abandonment in conformation (SOND): Single Volume   Stateme:   Stateme: All permittee rights and	Vell ☐ Attached ☐ On File ont of Financial Responsibilities are ass	Surety or Bank T Bond Number 1 onsibility sumed by:	03847277	Ca sua	Amoul	ty Co	50,000 Z		8-15-02
abandonment in conformation (SOND): Single Volume   Stateme:   Stateme: All permittee rights and	Vell Attached  \( \sum \) On File  Int of Financial Responsibilities are assection  Corporation	Surety or Bank T Bond Number 1 onsibility sumed by:	03847277	Casua	Amou	ty Co nt_\$2	50,000 Sun		8-/5-02- Date
abandonment in conformation (a) Single Volume (b) Blanket Statement (b) Statement (c)	Vell Attached  \( \sum \) On File  Int of Financial Responsibilities are assection  Corporation	Surety or Bank T Bond Number 1 consibility sumed by:  James T. Brown	03847277	Casua	Amoul	ty Com \$2	50,000 Sun		8-15-02 Date
abandonment in conformation (a) Single Volume (b) Blanket Statement (b) Statement (c)	Vell Attached  \( \sum \) On File  Int of Financial Responsibilities are assection  Corporation	Surety or Bank T Bond Number 1 consibility sumed by:  James T. Brown	03847277	Casua	Amoul	ty Cont \$2	50,000 Sun		8-15-02- Date
abandonment in conformation (SOND): Single Volume   Single Volume   Statement	Vell Attached  On File  Int of Financial Responsibilities are assecuring Corporation interes.	Surety or Bank T Bond Number 1 consibility sumed by:  James T. Brown	03847277 cive name	Casua C	Amoul	ty Cont \$2	50,000 Sun		8-/5-0>- Date

FOR DEPARTMENT OF ENVIRONMENT	AL QUALITY USE ONLY		
		Distribution by	DEQ
Approved Tand Pan	DEC 1 9 2002 ~	Lansing	Selling Owner
Signature	Date	Field	Acquiring Owner

Authorized representative name

PERMITS & BONDING

Signature

Date

EQP 7200-7 (Rev 3/99)

Permittee

Mail Original and 3 copies to:

GEOLOGICAL SURVEY DIVISION
MICHIGAN DEPT OF ENVIRONMENTAL QUALITY
PO BOX 30256
LANSING MI 48909-7756

AUG 2 8 2002

GEOLOGICAL SURVEY

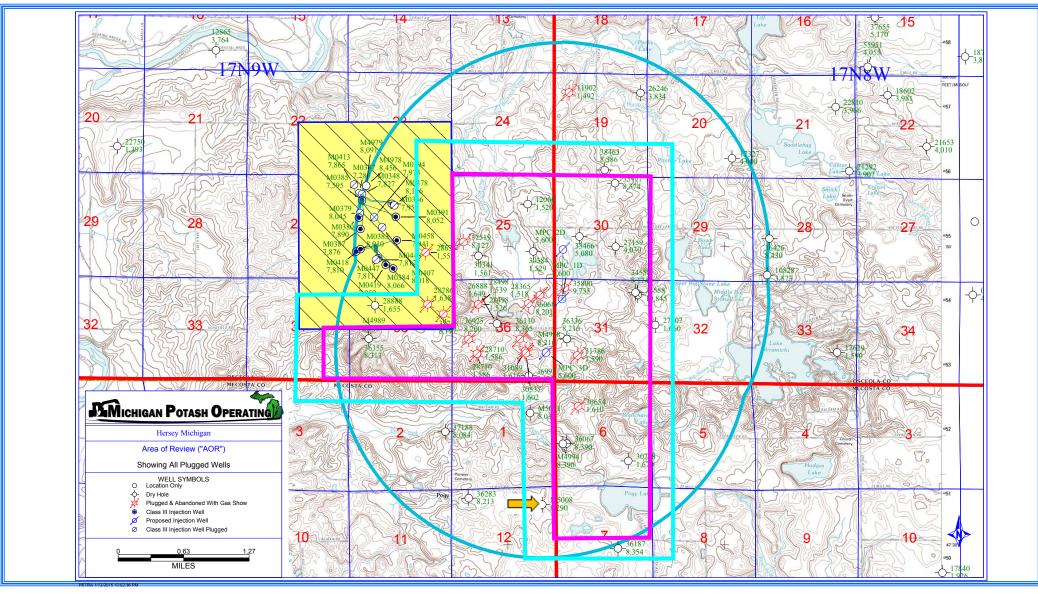
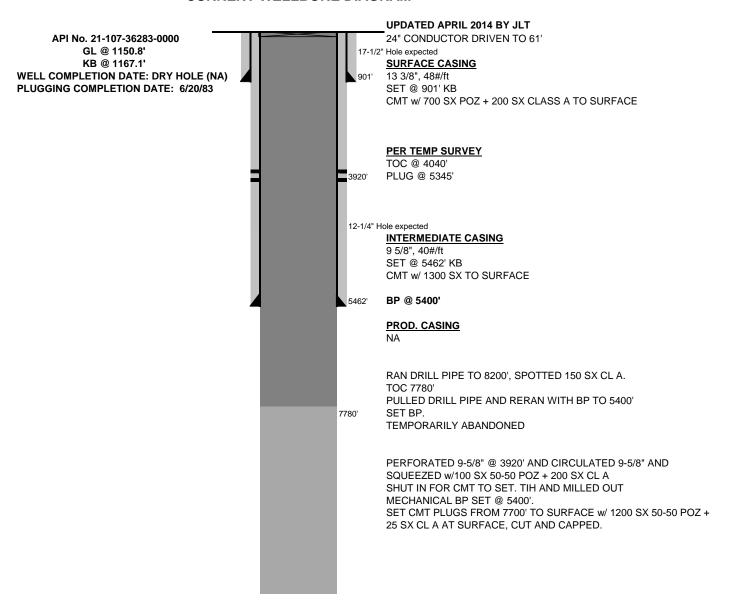


Figure B4. Map showing all plugged wells, shallow (that do not penetrate any confining horizon) or deep (that penetrate confining horzion) within the area of review. Total Depths are listed. There are several shallow Michigan Stray wells that do not penetrate the injection or confining horizon.

### **PARK 1-12**

## NE NW NW Sec 12 T16N R9W MECOSTA COUNTY, MI

### **CURRENT WELLBORE DIAGRAM**



TD @ 8215' KB

### **PARK 1-12 WELL HISTORY**

<u>DATE</u> <u>DESCRIPTION</u>

12/10/1982 SPUD.

1/9/1983 DRILLING COMPLETED. FORMATION AT TD CINCINNATIAN.

24" CONDUCTOR SET AT 61'

13 3/8" SET AT 901'; 700 SX POZ + 200 SX CL A

9 5/8" SET AT 5462'; 1300 SX

1/10/1983 PLUGGING START DATE

RAN DRILL PIPE TO 8200' AND SPOTTED 150 SX CL A. TOP OF CEMENT 7780'. PULLED DRILL PIPE AND RERAN WITH

PERFORATED 9-5/8" AT 3920' AND CIRCULATED 9-5/8" AND SQUEEZED WITH 100 SX 50-50 POZ AND 200 SX CL A. SHUT IN FOR CEMENT TO SET. TRIPPED IN HOLE AND MILLED OUT MECHANICAL BP SET AT 5400'. SET CEMENT PLUGS FROM

7700' TO SURFACE - 1200 SX 50-50 POZ AND 25 SX CL A AT SURFACE, CUT AND CAPPED.

6/20/1983 PLUGGING COMPLETED.

PER TEMPERATURE SURVEY: TOP OF CEMENT AT 4040' AND PLUG AT 5345'

## STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES

FEB 1 0 1083

LOG OF OIL, GAS, DISPOSAL OR STORAGE WELL (ACT 61)
Submit in DUPLICATE Within 30 Days after Well Completion

PERMIT NUMBER 36283 DEEPENING PERMIT NUMBER

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}				F OWNER(S	1 SHOWN C	NPERMIT	}				HILLING C	UNI	HACIC	)K(S)			
ı	Willme	-		n (			ļ	T. D. Provins 2113 Enterprise Drive									
	2250 E	nter	pris	se Drive MI 4885	∶Q			Mt. Pleasant, MI 48858									
				NUMBER		PERMIT		116.4	1 Teasan		111 400		ECTIO	NALLY	DRI	LLED	)
ı	Park	#1-12	2									YES		NO 🖁	1		
Sυ	RFACE L	OCATIO	ON		SECTION		TOWNSHIP	IP RANGE TOWNS					NSHI	NAME			
	ne nw	NW		İ		12	16N			Grant							
	OTAGES		-					ast/West)				COUNTY NAME					
						380			EST Line of quarter section				Mecosta Township NAME				
<u>ŞU</u>	BSURFAC	<u>CE</u> LOC	ATIC	)N	SECTION		TOWNSHIE	,	RANGE			TOV	VNSHII	NAME			
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FU				•	ine and		•-	,	ine of quarte	erse	ection	000	7191 7 1	VAINIE			
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- 1	12-10-				Driller 82	215 Log_		1				ļ	E	LEVAT	ION	5	
\\	DRILLIN	G COM	PLET	ED	f	ON AT T.D.			80TAR	Y TO	OOLS	K.B.		F	I.F.		
7	1-9-83	3			Ci	incinnati	lan	From	<u>0                                    </u>	82	215	1	1167	.1	11	.65	9
ε Ι	WELL CO	MPLET	CED		PRODUCI	NG FORMAT	ION(S)	FT. DRLD	CABLE	TOC	DLS	я.т.			ord.		
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	3/8"			901'	700 PO	2/200 C1	Δ		110020					<del>.</del>		165	140
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		STIMU	JLAT	ION BY ACI	D OR FRA	CTURING		WAT	ER FILL UP	) (F.	.U.) OR LC	ST C	IRCUL	ATION	(L.C	.) {X}	
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		MECH	ANIC.	AL LOGS, L	IST EACH	TYPE RUN		DEPTH C	DRRECTION	1 0	DEVIATIO	N SU	RVEY	PLU	GGE	BAC	:K
	Brand		(X)	LOG 1	TYPES	LOGGED IN	NTERVALS	DEPTH	CORRECT	N	RUN AT	DEG	REES	YES	NO	DEF	PTH
Scl	lumberge	r	XX	LDT-CNI	L-GR	100	-8209				3185		120			1	
	dwell			Sonic		700	-8200				4995	2	0				
2				DLL-MLI	, 	ſ	-8200		-	7	5826	1	1/4°	<b></b>		-	
K						L		<u></u>	<u> </u>		7954	2	20				
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( A	M RESPO	NSIBLE	E FOI	R THIS REP	ORT. THE	INFORMAT	ION IS COM	PLETE AN	D CORREC	Τ, ૂ	Λ						

NOTICE REPORT COMPLETE SAMPLE AND FORMATION RECORD AND DRILL STEM TEST INFORMATION ON REVERSE SIDE

SIGNATOR

NAME AND TITLE (PRINT)
William E. Booker, Geologist

DATE 1-20-83

A - 7210 Rev. 3/77

### STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES

FEB 1 6 1983

NOV 2 8 1985 MSING HAS COPY

WELL PLUGGING	GRECORD
---------------	---------

(Submit in TRIPLICATE Within 30 Days After Plugging is Completed)

REPLOY 0. 36283

FIND- ABPROVA-

30203
AME
•

			ļ	
COMPLETE NAME(S) AND ADDRESS OF	WELL OWNER			
WILLMET, INC.				
COMPLETE LEASE OR FARM NAME(S)				WELL NUMBER
Park				#1-12
WELL LOCATION			TOWNSHIP	COUNTY
NW % NW % NW	% SEC. 12 T. 161	N R. 9W	Grant	Mecosta
TYPE OF WELL (Oil, Gas, Dry Hole, etc.)		TOTAL DEPTH	FORMATION	
Dry Hole		8215	Cincinnatian	
DATE PLUGGING STARTED DAT	TE PLUGGING COMPLETED		ATIVE(S) WHO ISSUED PERI	MIT OR WITNESSED
1-10-83	1-10-83	PLUGGING Sk	ipper	···

	CASING	RECORD	
SIZE CASING	DEPTH SET	AMOUNT RECOVERED	SHOT OR RIPPED
24"	61'		
13 3/8"	901'		
9 5/8"	5462		

	BRIDGES OR PLUGS	S
TYPE (Brush, Stone, Coment, Mechanical, etc.)	DEPTH PLACED	SACKS OF CEMENT AND ADDITIVES
Cement	8200-7780	150 Sx Cl A
Mechanical		
Bridge Plug	5400	

Were tools, tubing, casing, etc., lost or left in the hole before or during plugging?	YES	NO	If yes, give details:
Did a Service Company pump mud, spot cement, or set bridge plugs?	XYES	□NO	If yes, give name and address:  Dowe11
Was the well plugged by a Company or Contractor other than Owner or Operator?	YES	X NO	If yes, give name and address:
Representatives of Owner, Operator, Company, or plugging: Marvin Woods	Contractor v	vho witnessed	
DESCRIBE IN DETAIL HOW WELL WAS PLUGGED	Ran dri	11 pipe to	8200 and spotted 150 sx Cl A. Top
of cement 7780. Pulled drill	pipe and	reran with	h bridge plug to 5400, set bridge plug.
TEMPORARILY ABANDONED.			
			_
i			
			(USE REVERSE SIDE IF NEEDED)

	ICATION  eport; and that this report was prepared under my supervision and direct the best of my knowledge."
NAME AND TITLE (Typed or Printed) William E. Booker, Geologist	Strickler Geological Services, Inc.
	Month, Day, Year) 1425 S. Mission Mt. Pleasant, MI 48858

### OPERATORS USE

Description of Detail (cont.) or Other Supplemental Date:		
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DEP	ARTMENT USE ONLY	
Supplemental Plugging Data and Site Conditions:	THE STATE OF	
Site clean & recontours		
FINAL INSPECTIONS	BY DEPARTMENT REPRESENTATIVES	
SIGNATURE	DIVISION	DATE
SIGNAT ONE		
1. U Ohia.	1.1.1.6.	11 21 00
James G. Skriper	Jeological Survey	11-21-83
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7 '		

### STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES

MAY 2 2 1984 LANSING HAS COPY

·	OLOGICAL SURVEY DIVISION						
Y WE	PERMIT NUMBER						
(Submit in TRIPLIC	ATE Within 30 Devs After Plugging is Con	npleted) OCT		36283			
Willred Submit in TRIPLIC	LL PLUGGING RECORD  ATE Within 30 Days After Plugging is Con	2 19	FIELD NAME				
COMPLETE NAME(S) AND ADDR							
PPG Oil & Gas Co	., Inc., 2258 Enterprise	Drive, Mt. Ple	asant, MI 4885	58			
COMPLETE LEASE OR FARM NA	ME(S)	•		WELL NUMBER			
Park				#1-12			
WELL LOCATION			TOWNSHIP	COUNTY			
ne % nw %	NW 1/4 SEC. 12 T. ]	6N R. 9W	Grant	Mecosta			
TYPE OF WELL (Oil, Gas, Dry Hole	e, etc.)	TOTAL DEPTH	FORMATION				
THE OF MELL (OIL, OAL, DIS NO.							
Dry Hole		8215	Cir	ncinnatian			
	DATE PLUGGING COMPLETED		_1	ncinnatian PERMIT OR WITNESSED			

NE <sup>7</sup>	NW 74	NW M SEC.	12 1.	TOM L AM	Grant	Mecusta
TYPE OF WELL (O	il, Gas, Dry Hole,	etc.)		TOTAL DEPTH	FORMATION	
Dry Ho	1e			8215	Cinci	nnatian
DATE PLUGGING	STARTED	DATE PLUGGING	COMPLETED		VE(S) WHO ISSUED PER	MIT OR WITNESSED
1-10-8	3	6-20-83		PLUGGING	Skipper	
	CASING	RECORO			BRIDGES OR PLU	JGS
SIZE	DEPTH SET	AMOUNT RECOVERED	SHOT OR RIPPED	TYPE (Brush, Sto Cement, Mechanical	Pne, DEPTH , etc.) PLACED	SACKS OF CEMEN AND ADDITIVES
24"	61			Cement	3200-7780	150 Sx C1 A
13 3/8"	901			Cement	7700-0	1225 Sx
9 5/8"	5462					
						<del></del>
		<del> </del>		┨ <del>┣╶┈</del>	<del></del>	
	<del></del>			J L		
Did a Service Cor spot cement, or s		ıd,	XX YES	· · · · · ·	name and address:	
Was the well plug Contractor other	-		TYES T	If yes, give r	name and address:	
		·			n Woods	
Representatives oplugging:	owner, Opera	tor, Company, or (	CONTRACTOR WIND A	vitnessed <u>Hai vi</u>	ir woods	
DESCRIBE IN DETA			almoulated	9 5/8" and squee	and with 100 ev	50-50 202
Perioral	cea 9 3/8	Chub in for	circulated	et. Tripped in h	polo and milled	out mechanical
200 and 200	SX CI A.	Set coment	pluge from	7700' to surface	-1200  sx  50-5	O poz and
		ace, cut and		7700 CO Bullace	. 1200 SR 30 S	o poz ana
ZJ SK C.	I war surr	ace, cut and	capped.			
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Representative	s of Owner, Operator, Company, o	r Contractor v	who witnessed	Marvin Woods
plugging:	, , , , , , , , , , , , , , , , , , , ,			
		·		
	ETAIL HOW WELL WAS PLUGGED			
Perfor	ated 9 5/8" at 3920' at	id circula	ited 9 5/8"	and squeezed with 100 sx 50-50 poz
and 20	00 sx Cl A. Shut in for	cement t	o set. Tri	pped in hole and milled out mechanical
Β.P. ε	et at 5400'. Set cemer	it plugs f	rom 7700' t	o surface - 1200 sx 50-50 poz and
	Cl A at surface, cut ar			
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"I state that J	am authorized by said Owner or O	-		<u>m</u> Id that this report was prepared under my supervision and dire

DATE (Month, Day, Year)

5/17/84

tion, and that the facts stated herein are true, correct and complete to the best of my knowledge."

NAME AND TITLE (Typed or Printed)

William E. Booker, Geologist

Mt. Pleasant, MI 48858

STRICKLER GEOLOGICAL SERVICES, INC.

COMPANY NAME AND ADDRESS

1425 S. Mission

OPERATORS USE

Description of Detail (cont.) or Other Supplemental Deta:

DEPARTMENT USE ONLY

Supplemental Plugging Deta and Site Conditions:

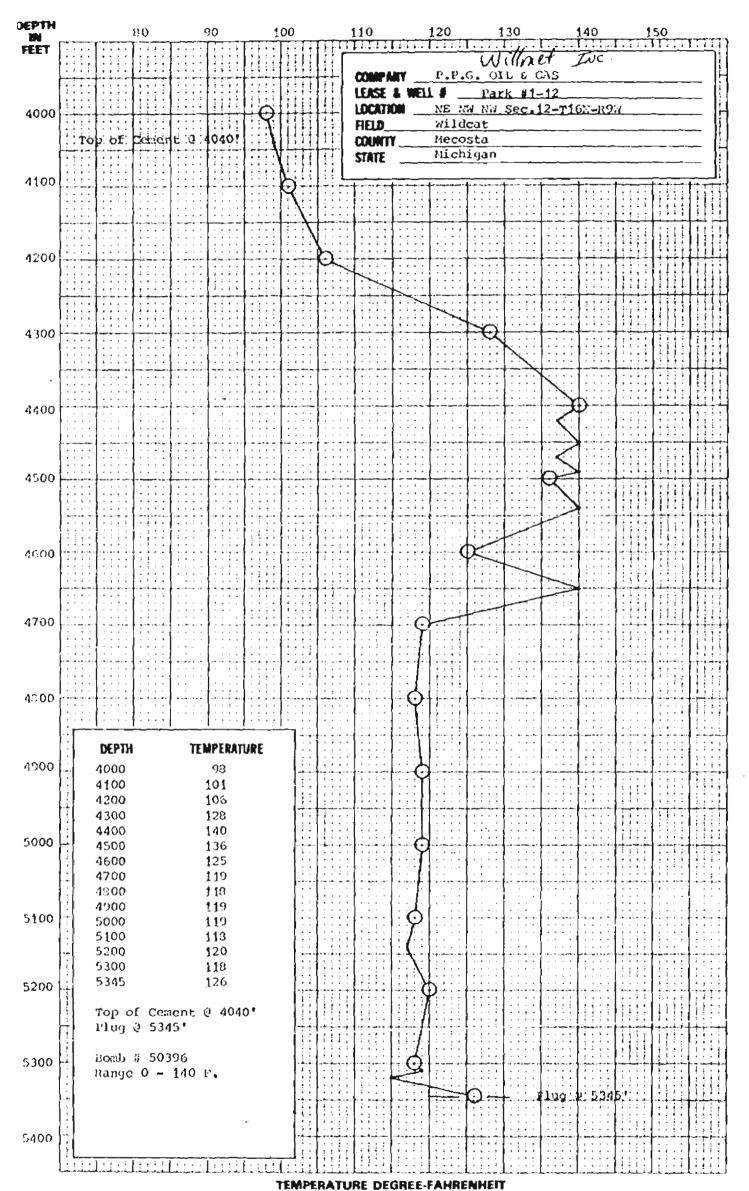
Location approved by Skipper 1/23/64 Clean Arecontaured

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FINAL INSPECTI	ONS BY DEPARTMENT REPRESENTATIVES	
SIGNATURE	DIVISION	DATE
James G. Skipper	Geol. Survey	9/26/54

### DAR-WAY, INC. . P. O. BOX 52 . KALKASKA, MICHIGAN

### **TEMPERATURE SURVEY**



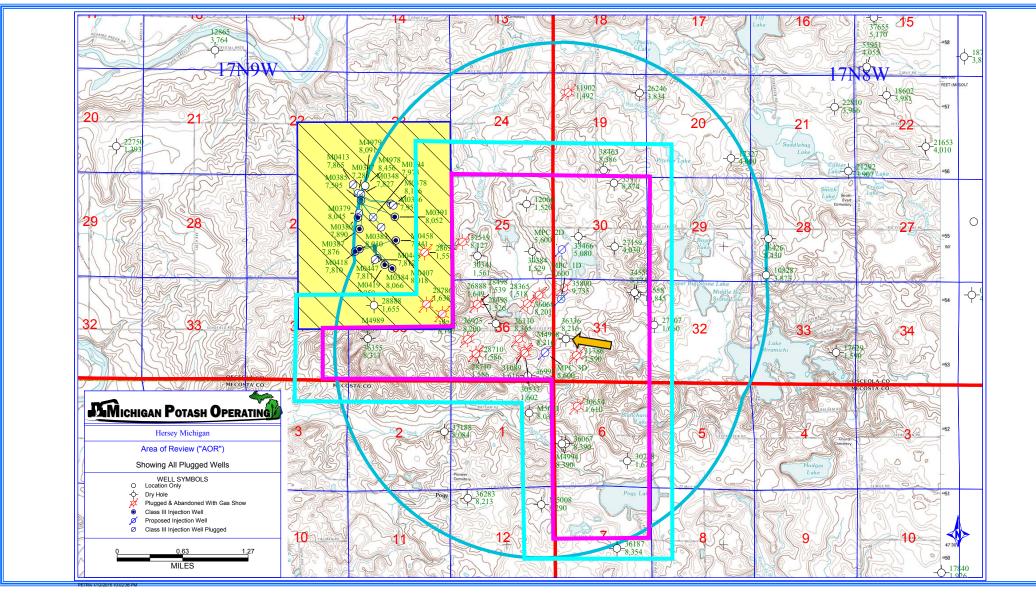
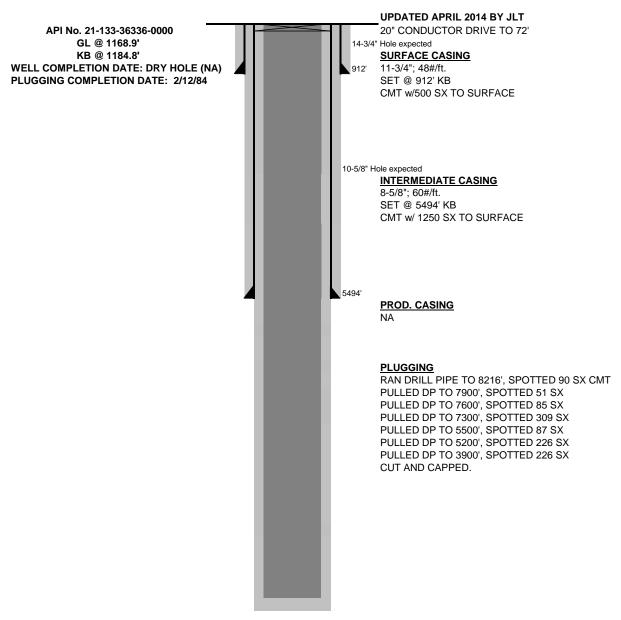


Figure B4. Map showing all plugged wells, shallow (that do not penetrate any confining horizon) or deep (that penetrate confining horzion) within the area of review. Total Depths are listed. There are several shallow Michigan Stray wells that do not penetrate the injection or confining horizon.

### **PARK 1-31**

## NE NW SW Sec 31 T17N R8W OSCEOLA COUNTY, MI

### **CURRENT WELLBORE DIAGRAM**



TD @ 8216' KB

### **PARK 1-31 WELL HISTORY**

<b>DATE</b> 1/10/1984	DESCRIPTION SPUD.
2/10/1984	DRILLING COMPLETED. FORMATION AT TD BURNT BLUFF. 20" CONDUCTOR DRIVEN TO 72' 11-3/4" SET AT 912'; 580 SX 8-5/8" SET AT 5494'; 1250 SX
2/11/1984	PLUGGING STARTED RAN DRILL PIPE TO 8216' AND SPOTTED 90 SX, PULLED DRILL PIPE TO 7900' AND SPOTTED 51 SX PULLED DRILL PIPE TO 7600' AND SPOTTED 85 SX PULLED DRILL PIPE TO 7300' AND SPOTTED 309 SX PULLED DRILL PIPE TO 5500' AND SPOTTED 87 SX PULLED DRILL PIPE TO 5200' AND SPOTTED 226 SX PULLED DRILL PIPE TO 3900' AND SPOTTED 226 SX CUT AND CAPPED.
2/12/1984	PLUGGING COMPLETION DATE

# DEPARTMENT OF NATURAL RESOURCES LOG OF OIL, GAS, DISPOSAL OR STORAGE WELL (ACT 61) Submit in DUPLICATE Within 30 Days after Welt Completion

36336

DEEPENING PERMIT NUMBER

	•	,Submit in DUPLIC.	ATE Within 30 Days after t	Well Comple	SEP 0 6		PEPENING P	CHMII NUMBER			
NAI	ME(S) & A	DDRESS OF OWNER	SI SHOWN ON PERMIT		NAME & AD	DRESS OF	DRILLING C	ONTRACTOR(S)	1		
	PPG Of	1 & Gas Co., 1	Inc.		T. D. Provins Drilling Co.						
į	2258 E	Interprise Driv	re .		2113 Enterprise Drive						
	Mt. Pl	easant, MI 488	358		Mt. Pleasant, MI 48858						
LEA	SE NAMI	E(S) & WELL NUMBER	SHOWN ON PERMIT					DIRECTIONAL	LYDR	ILLED	
1	Park 1	-31						YES . NO	, [XX		
SU	RFACE LO	CATION	SECTION	TOWNSHI	P	RANGE		TOWNSHIP NA	ME		
1	NE NW	SW	31	17N	İ		8W	Evart			
FO	OTAGES	(North/South)	<del></del>	(E	ast/West)			COUNTY NAME	=		
<b> </b>	460 F	t. from North	Line and 460	_Ft. from	m West Line of quarter section			Osceola			
SUI	BSURFAC	E LOCATION	SECTION	TOWNSHI	HANGE		TOWNSHIP NAME				
)			l	1				· ·			
FO	OTAGES	(North/South)		{E	est/West)			COUNTY NAME	-		
[	F	\$. from	Line and	Ft. from	Lin	e of quarte	r section	•			
	DRILLING	BEGUN	TOTAL DEPTH OF WE		TYPE WELL						
	1-	10-84	Driffer 8216 Log_	8216	Dry Hole			ELEVATIONS			
	DAILLING	COMPLETED	FORMATION AT T.D.		FT. DALD			K.B. R.F.			· · · · · · · · · · · · · · · · · · ·
7		10-84	Burnt Bluff		From_0	To	8216	1184.8	1	.183.	3
E	WELL CO	MPLETED	PRODUCING FORMAT	ION(S)	FT. DRLD.	- CABLE T	OOLS	R.T.	Grd.		
					From	To		·	1	168.	9
		CASING, CASING LIN	ERS AND CEMENTING				PERFOR	ATIONS			_
	SIZE	WHERE SET	CEMENT	Ft. Pulled		NUMBE	3			OPE	EN
	20"	72'	Drill Pipe		DATE	HOLES	INTERV	/AL PERFORATI	בט	YES	NO
11	3/4"	912'	580 Sx								
	5/8"	5494'	1250 Sx								

### GROSS PAY INTERVALS

### ALL OTHER OIL AND GAS SHOWS OBSERVED OR LOGGED

FORMATION	OIL OR GAS	FROM	TO		OIL			NHER	E 085	ERVE	O (X)	
				FORMATION	ORGAS	DEPTH	Sam- ples	Odor	Pas	Mud Line	Gas Log.	F#F Up
				Sunbury	Gas	2650					XX	
				Antrim	Gas	3150					XX	
				Burnt Bluff	Gas	8159					XX	

### STIMULATION BY ACID OR FRACTURING

### WATER FILL UP (F.U.) OR LOST CIRCULATION (L.C.) (X)

DATE	Interval Treated	Materials and amount used	FORMATION	F.U.	L.C.	DEPTH	AMOUNT
	<del></del>		} <del></del>				
				<del></del>			
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### MECHANICAL LOGS, LIST EACH TYPE RUN

### DEPTH CORRECTION DEVIATION SURVEY PLUGGED BACK

Brand	(x)	LOG TYPES	LOGGED INTERVALS	DEPTH	CORRECTN	RUN AT	DEGRESS	YES	NO	DEPTH
Schlumberger	XX	BHC Sonic	6610-8216			2545	1°			
Birdwell		DLL MLL	3300-5503			3500	15°			
P			6610-8216			6666	3/4°			
		LDT CNL GR	200-8216			7537	₽°			

### PRODUCTION TEST DATA

OIL - Bbis/day	GRAVITY - "API	COND. Bbis/day	GAS - MCF/day	WATER - Bbls/day	H <sub>2</sub> S - Grains/100 cv. ft.	B.H.P. AND DEPTH
	<b>S</b>			1	(	
		<u> </u>	L	<u></u>	<u> </u>	

### I AM RESPONSIBLE FOR THIS PEPORT. THE INFORMATION IS COMPLETE AND CORRECT.

DATS/19/84 NAME AND TITLE (PRINT)
William E. Booker, Geologist SIGNATURE

SIGNATURE

SIGNATURE

STATE OF MICHIGAN TYPE OR PRINT REQUEST FOR TRANSFER OF A PERMAPR 26 19 PERMIT NO WELL TYPE 36336 SUBMIT 4 COPIES TO: Dry Hole Department of Natural Resources FIELD NAME Geological Survey Division Box 30028 Hersey-Clinton Lansing, Michigan 48909 Filing for change of ownership of well is required in accordance with Act Park 1-31 61, P.A. 1939 and Act 3l5 P.A. 1969, as amended, and Administrative WELL LOCATION Rules promulgated thereunder. SW 1/4 SECTION LOWNSHIP TRANSFER OF A PERMIT FROM: Evart Osceola NAME(S) OF SELLING OWNER(S) PPG Oil & Gas Co., Inc. ADDRESS. Number and Street -- City or Town -- State -- Zip Code -- Yelephone One Jackson Square, Suite 600, Jackson, MI 49201 (517) 782-8145 All operating rights are discharged by: Representative(s) PPG Oil & Gas Co., Inc., Richard M. Rompala ELIGIBILITY FOR PERMITS IS CONDITIONED UPON COMPLIANCE WITH THE STATUTES, RULES AND ORDERS OF THE DEPARTMENT OF NATURAL RESOURCES. PERMITS WILL NOT BE GRANTED TO PERSONS NOT IN COMPLIANCE. NON-SUBMISSION AND/OR FALSIFICATION OF THIS INFORMATION MAY RESULT IN FINES AND/OR IMPRISONMENT. TRANSFER OF A PERMIT TO: NAME(S) OF ACQUIRING OWNER(S) Marathon Oil Company ADDRESS Number and Street -- City or Town -- State -- Zip Code -- Telephone One Jackson Square, Suite 600, Jackson, MI 49201 (517) 782-8145 (We) (I) have acquired the well under this permit and assume full responsibility for the drilling, operation, and abandonment in conformity with the law, regulations and orders. SAFECO Insurance Company of America SURETY BOND: BONDING CO. .. SINGLE WELL ATTACHED BOND NUMBER 5194219 XX BLANKET XXI ON FILE All operating rights and responsibilities are assumed by Owner(s) Representative(s) Marathon Oil Company, Donald R. Hall FOR DEPARTMENT OF NATURAL RESOURCES USE ONLY DISTRIBUTION BY DNR Lansing Acquiring Owner 6/28/80 ☐ Selling Owner Field

NR DISTRIBUTION - imittee -- Orig & 1 copy Livision Office -- 2 copies rield Office -- File copy

thers - On request

### STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES GEOLOGICAL BURVEY DIVISION

PERMIT NUM	36336	
FIELD NAME	Uorgon	`

### PERMIT TO PLUG AND ABANDON

Hersey

ME AND ADD	RESS OF PERMITTEE						
PPG				_			
ASE NAME AL	ND WELL NO.			FFD			
Park	#1~31			~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	100		
CATION (YE K	Vi or other)	SECTION	V	TOWNSHIP 1984 COUNTY			
NE NU	sw,	31	7 17N R 8W	Evart	Osceola		
PE OF WELL	(Oil, Gas, Dry Hole, etc.)	DATE COMPLETED	DATE PLUGGING WILL START				
Dry h	ole	2/9/84	2/10/84	W. Booker	2/10/84		
ST PRODUCTI	ION			PLUGGING TO BE DONE BY			
OPD	BWPD	MCFGPO	DATE	Provins #1	. 2		
RMIT MAILED	TO		COPIES MAILED TO				

1 1	CASING AND CEMENTING RECORD								
T. DEPTUS SET	CEMENT QUANTITY, TYPE, ADDITIVES	CMY, YOP.	PERFORATIONS						
. 12									
912'	580 sx	suri							
5494	1250 sx								
<del></del>									
_	912'	912' 580 sx	912' 580 sx surf						

GEOLOGIC DATA; GAS AND OIL SHOWS; DRILLING AND COMPLETION DATA:

CONFIDENTIAL.

### PLUGGING REQUIREMENTS\*

Plugging requirements outlined are to be executed in accordance with the provisions of Act 61, P.A. 1939, as amended, and rules and orders adopted thereunder.

Spot C1 A cmt 8216-7900'; spot lite cmt. 7900-7600'; spot Cl A cmt 7600-7300'; spot lite cmt 7300-5500'; spot C1 A cmt 5500-52001; spot lite cmt. 5200-surface.

\*NOTE: BONDS CANNOT BE RELEASED UNTIL A PLUGGING IS COMPLETED, CELLAR RAT HOLE AND PITS FILLED, WELL SITE RESTORED AND RECORDS FILED. WATER WELLS MUST BE PLUGGED ACCOMPUNG TO RULE 186 OF ACT 294 P.A. 1965, "GROUND WATER QUALITY CONTROL", It is further made a requirement of this permit that the applicant give notice to the public utilities in accordance with Act 53, P.A. 1974 C.L. 460,701 to 450,718 and comply with each of the requirements of the act.

JTHORIZED BY (signature)	^	1.	
willed	[].	Mala	
Millan	<i></i>	1000	

OFFICE Cadillac D#6 DATE

2/13/84

### **DEPARTMENT OF NATURAL RESOURCES** GEOLOGICAL SURVEY DIVISION

### WELL PLUGGING RECORD

(Submit in TRIPLICATE Within 30 Days After Plugging is Completed)



•	•		~	-
- 1	<b>n</b>	3	⋖	h
	v	_	_	u

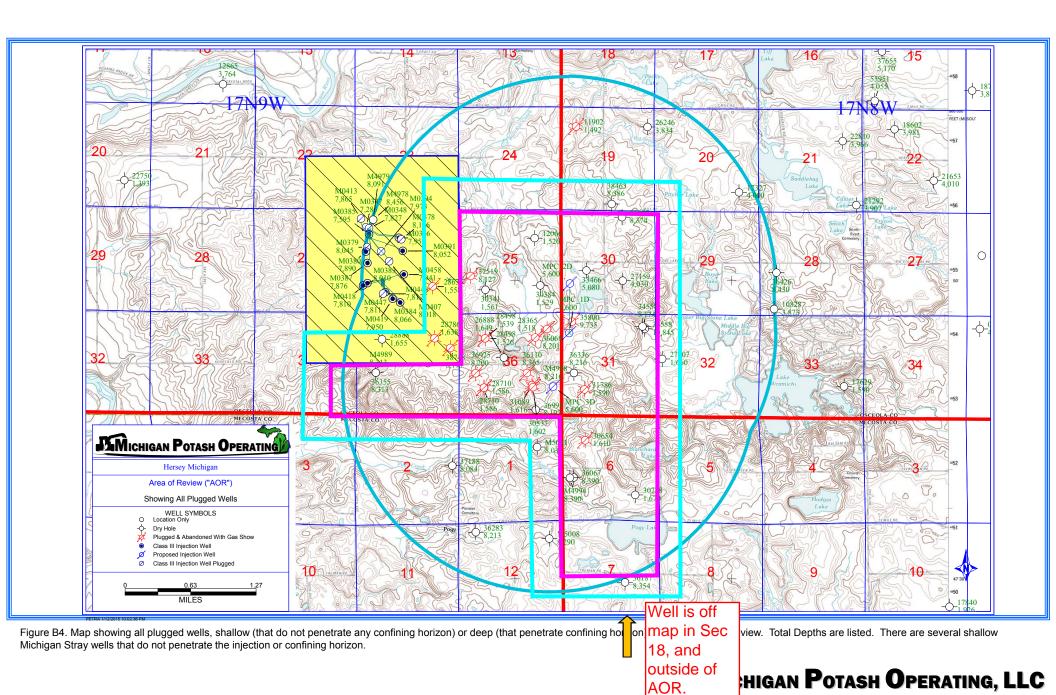
					•	FIELD	NAME	
COMPLETE NAM	MEIS) AND ADDRE	SS OF WELL OWNE	R			<u></u>		
PPG Qil &	Gas Co., I	nc., 2258 Ent	erprise Driv	e,	Mt. Pleasant	, MI	48858	
COMPLETE LEA	SE OR FARM NAM	AE(S)					•	WELL NUMBER
Park								1-31
WELL LOCATIO	NW %	SW % SEC. 3	31 <b>T</b> . 17N		R. 8W	TOWNS Eva	HIP art	COUNTY Osceola
TYPE OF WELL	(Oil, Gas, Dry Hole,	etc.)		T	OTAL DEPTH	FORMA	TION	
Dry Hole					8216	Bŧ	urnt Bluff	
DATE PLUGGIN 2-11-84	GSTARTED	DATE PLUGGING			EPT. REPRESENTA LUGGING	Mike N		MIT OR WITNESSED
1	CASING	RECORD		1.			RIDGES OR PLU	GS .
SIZE	DEPTH	AMOUNT	SHOT OR		TYPE (Brush, S		DEPTH	SACKS OF CEMENT
CASING	SET	RECOVERED	RIPPED		Cement, Mechanic		PLACED	AND ADDITIVES
20"	72'				Cement		8216	90 Sx
11 3/4"	912'				Cement		7900	51 Sx
8 5/8"	5494				Cement		7600	85 Sx
	•				Cement	_	7300	309 Sx
				1	Cement		5500	87 Sx
					Cement		5200	226 Sx
		···	·		Cement		3900	226 Sx
Were tools, tubi	ng, casing, etc., lo	ost or left			If yes, give	details:		
in the hole befo	re or during plugg	ging?	YES X	10				
		· · · · · · · · · · · · · · · · · · ·			· · · · · · · · · · · · · · · · · · ·			
ì	ompany pump mu	ıd,			If yes, give		d address:	
spot cement, or	set bridge plugs?		X YES N	10	<u> Hallib</u>	urton		
11.					Mark all a			· · · · · · · · · · · · · · · · · · ·
· ·	igged by a Compa			in	If yes, give	name an	d address:	
Contractor othe	r than Owner or I	Oberators	YES X	VU				
Representatives	of Owner Operat	tor. Company, or C	Contractor who wit	tne	ssed Carl	Cookin	gham	
plugging:	or owner, opera							
		·····	<del></del>					
	TAIL HOW WELL							
-Ran drill	pipe to 821	6 and spotte	d 90 sx, pull	lec	d drill pipe	to 790	9 and spott	ed 51 sx,
								otted 309 sx,
					lled drill pi		5200 and sp	otted 226 sx
pulled dr:	ill pipe to	3900 and spo	tted 226 sx.	(	Cut and cappe	<u>d.</u>		
	<del></del>		<del></del>					<del></del>
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<del></del>							······································	
					. ,			· · · · · · · · · · · · · · · · · · ·
<u> </u>			~					
					· · · · · · · · · · · · · · · · · · ·		(LISE REVER	SE SIDE IF NEEDED)
							, cor neven	
			CEDTIE	:10	ATION			
"I state that I an	o authorized by s	aid Owner or Oper	CERTIF ator to make this r			port was	prepared under	my supervision and dire
					best of my knowle		Erstrag miles	.,
	E (Typed or Printed				. co	MPANY	NAME AND ADDE	
William E.	Booker, Ge	ologist						AL SERVICES, INC
SIGNATURE	10	^	DATE	Мо	nth Day, Year)	425 S.	Mission	

DATE (Month, Day, Year)

3-19-84

Mt. Pleasant, MI 48858

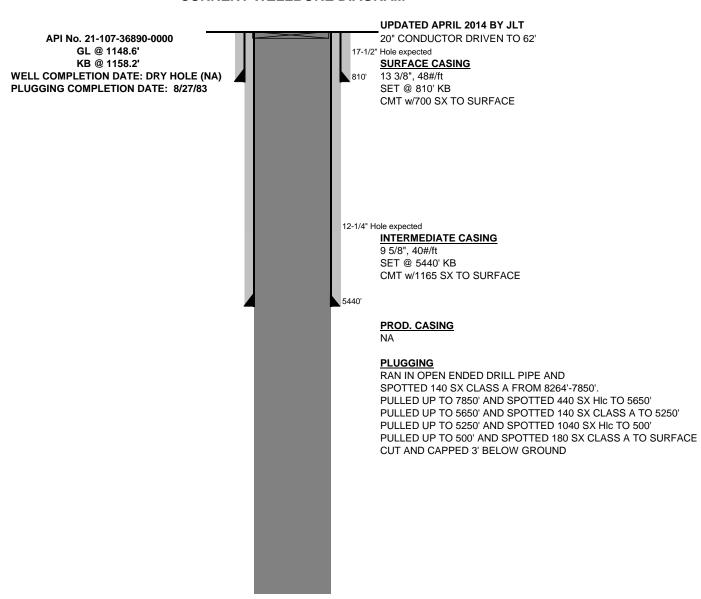
SIGNATURE



### **STEIN 1-18**

## NE NE SE Sec 18 T16N R8W MECOSTA COUNTY, MI

### **CURRENT WELLBORE DIAGRAM**



TD @ 8264' KB

### **STEIN 1-18 WELL HISTORY**

DATE

8/3/1983

SPUD.

8/25/1983

DRILLING COMPLETED. FORMATION AT TD CINCINNATIAN.
20" CONDUCTOR SET AT 62'
13 3/8" SET AT 810'; 700 SX
9 5/8" SET AT 5440'; 1165 SX

8/26/1983

PLUGGING START DATE
RAN IN OPEN ENDED DRILL PIPE AND SPOTTED 140 SX CL A FROM 8264'-7850'; PULLED UP TO 7850' AND SPOTTED 440 SX
HIC TO 5650'; PULLED UP TO 5650' AND SPOTTED 140 SX CL A TO 5250'; PULLED UP TO 5250' AND SPOTED 1040 SX HIC
TO 500'; PULLED UP TO 500' AND SPOTTED 180 SX CL A TO SURFACE; CUT AND CAPPED 3' BELOW GROUND.

8/27/1983

PLUGGING COMPLETED.

WELL COMPLETED

### STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES

NOV 2 3 1983 PERMIT NUMBER

Cincinnatian

None

PRODUCING FORMATION(S)

J	0	ŧ	85	įŲ			
 			_		 	 	 

OF UIL,	GAS,	DISE	OOMU	UK	SIUN	AGE	MELL (	ACI
Suhmit i	o DIJPL	ICATE	Within	30 Da	ve after	Well	Completio	n

Submit in <b>DUPLICA</b>	TE Within 30 Days after V	tion	DEEPENING	PERMIT NUMBER				
NAME(S) & ADDRESS OF OWNER(S	SHOWN ON PERMIT		NAME & ADDRESS OF DRILLING CONTRACTOR(S)					
PPG Oil & Gas, Inc.			James Bigard Drilling Company					
2250 Enterprise Drive			1315 Sou	th Mission Roa	đ	i		
Mt. Pleasant, MI 488	58	}	Mt. Plea	sant, MJ 4885	8			
LEASE NAME(S) & WELL NUMBER	SHOWN ON PERMIT				DIRECTIONALL			
STEIN #1-18					YES NO	X		
SURFACE LOCATION	SECTION	TOWNSHIP		RANGE	TOWNSHIP NAM	1E		
NE' NE' SE'	18   16N			8W Chippewa		į		
FOOTAGES (North/South) 465 Ft. from north L	ine and 635	(Ea		ne of quarter section COUNTY NAME Mecosta				
SUBSURFACE LOCATION	SECTION	TOWNSHIP		RANGE	TOWNSHIP NAME			
FOOTAGES (North/South)		(E	ast/West)		COUNTY NAME			
Ft. from L				e of quarter section	<u> </u>			
DRILLING BEGUN TOTAL DEPTH OF WELL			TYPE WELL		ļ			
8/3/83	Driller 8264 Log 8		.  Dry Hole		ELEVA	ATIONS		
A DRILLING COMPLETED FORMATION AT T.D.			FT. DRLD. ~	ROTARY TOOLS		R.F.		
			From 0	то 8264	1158.2	1156.9		

### CASING, CASING LINERS AND CEMENTING

### **PERFORATIONS**

Grd.

1148.6

SIZE	WHERE SET	CEMENT	Ft. Pulled	2475	NUMBER	INTERVAL PERFORATED	ОР	EN .
20"	621	D.P.		DATE	HOLES	INTERVAL PERFORATED	YES	NO
13-3/8"	810'	700 sx	-0-			None		
9-5/8"	54401	1165 sx	-0-			_	1	
							1	

FT. DALD. - CABLE TOOLS

\_ To \_

### **GROSS PAY INTERVALS**

### ALL OTHER OIL AND GAS SHOWS OBSERVED OR LOGGED

FORMATION	OIL OR GAS	FROM	TO		OIL			WHER	E OBS	ERVE	D (X)	
None				FORMATION	OR GAS	DEPTH	Sam- ples	Odor	Pils	Mud Line	Gas Log.	Fill Up
				Sunbury	Gas						Х	
				Antrim	Gas						X	
				Burnt Bluff	Gas	8160	T				Х	

### STIMULATION BY ACID OR FRACTURING

### WATER FILL UP (F.U.) OR LOST CIRCULATION (L.C.) (X)

DATE	Interval Treated	Materials and amount used	FORMATION	F.U.	L.C.	DEPTH	AMOUNT
	None		None				
	1						

### MECHANICAL LOGS, LIST EACH TYPE RUN

### DEPTH CORRECTION DEVIATION SURVEY PLUGGED BACK

Brand	(x)	LOG TYPES	LOGGED INTERVALS	DEPTH	CORRECT'N	RUN AT	DEGREES	YES	NO	DEPTH
Schlumberger	X	LDT-CNL-GR	5440-8264			1515	3/4			
Birdwell		DLL-MLL	5440-8264			3500	1/2			
P		Sonic	. 5440-8264			4600	3/4			
Gearhardt	Х	CNL-Density	800-5440			8240	112			

Sonic

800-5440

### PRODUCTION TEST DATA

	OIL - Bbls/day	GRAVITY - OAPI	COND. Bbls/day	GAS - MCE/day	WATER 8bls/day	Ho\$ Grains/100 cu. ft.	BHP AND DEPTH
	0.2 20.3/02/	10.17.1	00.112.00.000,	0.10	1	1120 014113/10000.11	5.1 / // // 5.5. / / /
		1			{	1	!
			1		ľ	1	1
1			ſ	[	l .		

### I AM RESPONSIBLE FOR THIS REPORT. THE INFORMATION IS COMPLETE AND CORRECT.

DATE	NAME AND TITLE (PRINT)	SIGNATURE 11 2 /	
8/29/83	William E. Booker, Geologist	Willia & Boucker	,
<u> </u>			

## FORMATION RECORD

(ATTACH ADDITIONAL SHEETS IF NECESSARY)

ELEVATION USED:		GEOLOGIST NAME:	DRILLER	ſ	SAMPLE LOG ELECTRIC LOG		
FROM	70	FORMATION (TYPE, COLOR, HARDNESS)	FROM	то	FORMATION (Type, COLOR, HARDNESS)		
NOTE: IF V	WELL DIRECTION TOPS	NALLY DRILLED, ADD TRUE VERTICAL WHERE APPROPRIATE.	6302		E Unit		
1410		Triple Gyp	6429		D Salt		
1484		Brown Limestone	6468		C Shale		
1592		Stray	6562		B Salt		
1706		Marshall	6940		A-2 Carbonate		
1860		Coldwater Shale	7079		A-2 Evaporite		
2630		Sunbury	7443		A-1 Carbonate		
2744		Ellsworth	7496		A-l Evaporite		
3117		Antrim	7856		Niagaran		
3280		Traverse Formation	7974		Manistique (Clinton)		
3332		Traverse Limestone	8036		Burnt Bluff		
3842		Bell Shale	8094		Cabot Head		
3900		Dundee	8174		Manitoulin		
3964		Reed City Anhydrite	8212		Cincinnatian		
3990		Reed City Dolomite					
4124		Detroit River Anhydrite					
4190		Detroit River Salt	IF WELL WAS CORED. ATTACH CORE DESCRIPTION				
4558		Base Detroit River Salt	DRILL STEM TEST DATA				
4588		Sour Zone	No DST o	cores			
4758		Massive Anhydrite					
4951		Base of Anhydrite					
5052		Black Lime					
5128	:	Sylvania					
5250		Bois Blanc			•		
5370		Bass Island					
5691		Salina G Unit					
5702		F Unit					
5747		F Salt					

YANSING HAS COPY

STATE OF MICHIGAN
DEPARTMENT OF NATURAL RESOURCES
GEOLOGICAL SURVEY DIVISION
WELL PLUCCIALS

WELL PLUGGING RECORD NOV 2 9 1983

WELL PLUGGING RECORD

(Submit in TRIPLICATE Within 30 Days After Plugging is Completed)

2 1984

| Submit in TRIPLICATE Within 30 Days After Plugging is Completed) PERMIT NUMBER 36,890

Final spece COMPLETE NAME(S) AND ADDRESS OF WELL OWNER PPG Oil & Gas, Inc., 2250 Enterprise Drive, Mt. Pleasant, MI 48858 WELL NUMBER COMPLETE LEASE OR FARM NAME(S) 1-18 STEIN COUNTY TOWNSHIP WELL LOCATION T. 16N R. 8W Chippewa Mecosta NE ¼ 14 SEC. 18 NE ¼ SE TYPE OF WELL (Oil, Gas, Dry Hole, etc.) TOTAL DEPTH FORMATION 8264 Cincinnatian Dry hole DEPT. REPRESENTATIVE(S) WHO ISSUED PERMIT OR WITNESSED PLUGGING Wayne Todd DATE PLUGGING STARTED DATE PLUGGING COMPLETED Wayne Todd 8/26/83 8/27/83

	CASING	RECORD	
SIZE CASING	DEPTH SET	AMOUNT RECOVERED	SHOT OR RIPPED
20"	62'	-0-	
13-3/8"	810'	-0-	
9-5/8"	54401		
			<del></del>
		<del> </del>	

BRIDGES OR PLUGS							
DEPTH PLACED	SACKS OF CEMENT AND ADDITIVES						
8264	140 sx Cl A						
7850	440 sx Hlc						
5650	140 sx Cl A						
5250	1040 sx Hlc						
500	180 sx Cl A						
	8264 7850 5650 5250						

in the hole before or during plugging?	YES	X NO	17 yes, give details.
Did a Service Company pump mud, spot cement, or set bridge plugs?	X YES	□NO	If yes, give name and address: Halliburton
Was the well plugged by a Company or Contractor other than Owner or Operator?	YES	X NO	If yes, give name and address:
Representatives of Owner, Operator, Company, plugging: Willy Masterson	or Contractor v	vho witnessed	d
DESCRIBE IN DETAIL HOW WELL WAS PLUGGED 8264-7850'; pulled up to 7850' 140 sx to 5250'; pulled up to 5 spotted 180 sx to surface; cut	250' and s	potted 10	drill pipe and spotted 140 sx from to 5650; pulled up to 5650; and spotted 040 sx to 500; pulled up to 500; and w ground.
			(USE REVERSE SIDE IF NEEDED)
		ACD TICLO A Y	1ON

"I state that I am authorized by said Owner or Operate tion, and that the facts stated herein are true, correct a			
NAME AND TITLE (Typed or Printed)		COMPANY NAME AND ADDRESS	
William E. Booker, Geologist	STRICKLER GEOLOGICAL SERVICES, INC.		
SIGNATURE	DATE (Month, Day, Year)	1425 South Mission Road	
Willia & Booker	8/29/83	Mt. Pleasant, MI 48858	

**OPERATORS USE** Description of Detail (cont.) or Other Supplemental Data: **DEPARTMENT USE ONLY** Supplemental Plugging Data and Site Conditions: Location approved by stripper 7/23/84 Clean grecontoured. GEOLUGICAL SURVEY FINAL INSPECTIONS BY DEPARTMENT REPRESENTATIVES
DIVISION HOV 23 1905 FINAL INSPECTION
SIGNATURE
Control Unit

Control Skipper Geol. Survey

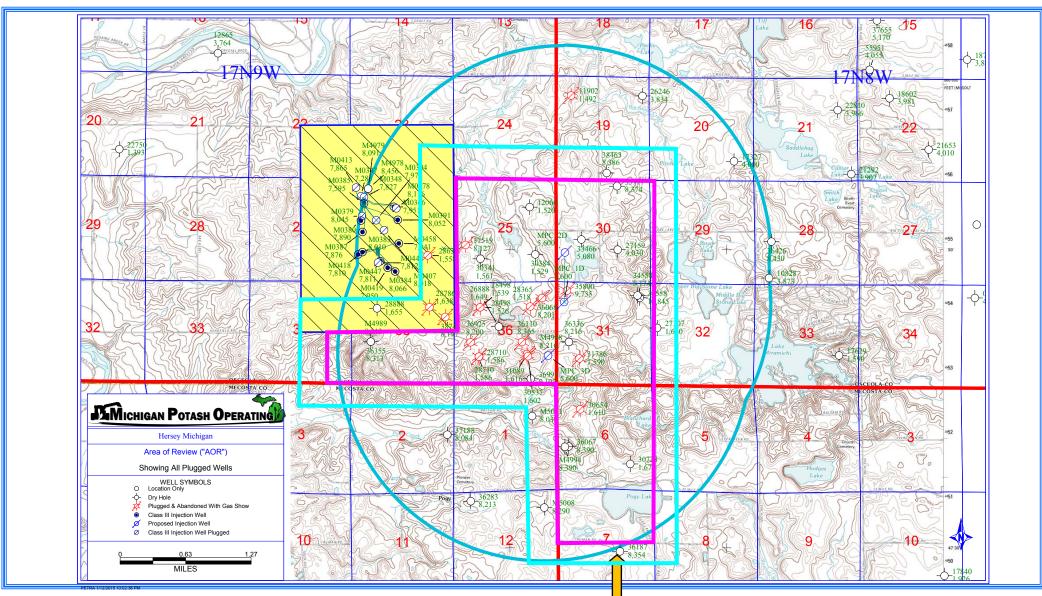


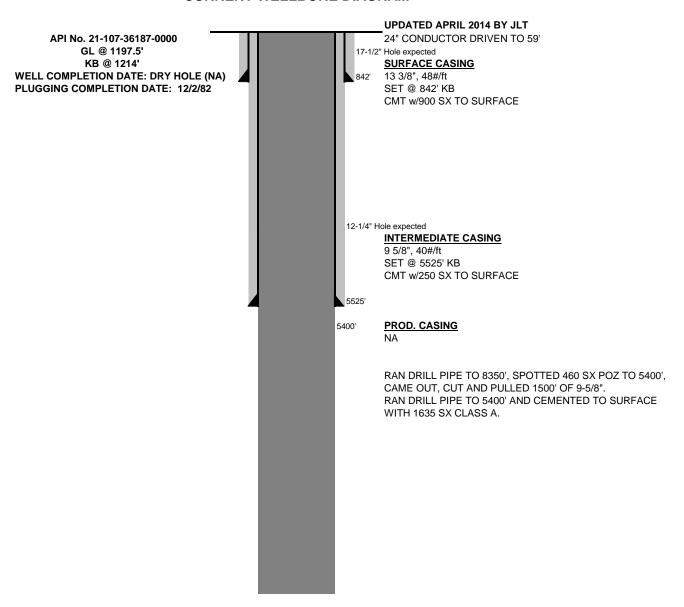
Figure B4. Map showing all plugged wells, shallow (that do not penetrate any confining horizon) or deep (that penetrate confining horizon) within the area of review. Total Depths are listed. There are several shallow Michigan Stray wells that do not penetrate the injection or confining horizon.



### **STEIN 1-7**

## NE NW SE Sec 7 T16N R8W MECOSTA COUNTY, MI

### **CURRENT WELLBORE DIAGRAM**



TD @ 8380' KB

### **STEIN 1-7 WELL HISTORY**

DATE

11/3/1982
SPUD.

11/30/1982
DRILLING COMPLETED. FORMATION AT TD CINCINNATIAN.
24" CONDUCTOR SET AT 59'
13 3/8" SET AT 842'; 900 SX
9 5/8" SET AT 5525'; 250 SX

12/1/1982
PLUGGING START DATE
RAN DRILL PIPE TO 8350' AND SPOTTED 460 SX POZ TO 5400', CAME OUT AND PULLED 1500' OF 9-5/8". RAN DRILL PIPE TO 5400' AND CEMENTED TO SURFACE WITH 1635 SACKS CLASS A.

STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES

JAN 4 1983

PERMIT NUMBER

36187

LOG OF OIL, GAS, DISPOSAL OR STORAGE WELL (ACT 61) DEEPENING PERMIT NUMBER CIPHMIL IN THE CATE WARD Days after Well Completion NAME & ADDRESS OF DRILLING CONTRACTORIS NAME(S) & ADDRESS OF OWNER(S) SHOWN ON PERMIT Willmet, Inc. T. D. Provins Drilling 2250 Enterprise Drive 2113 Enterprise Drive Mt. Pleasant, MI 48858 Mt. Pleasant, MI 48858 LEASE NAME(S) & WELL NUMBER SHOWN ON PERMIT DIRECTIONALLY DRILLED Stein #1-7 YES NO XX SURFACE LOCATION SECTION TOWNSHIP TOWNSHIP NAME RANGE NE NW SE 7 16N 8W Chippewa FOOTAGES COUNTY NAME (North/South) (East/West) 854 Mecosta 460 Ft. from North Ft. from West \_Line of quarter section 1 ine and SUBSURFACE LOCATION SECTION TOWNSHIP TOWNSHIP NAME RANGE FOOTAGES (North/South) (East/West) COUNTY NAME Ft. from\_\_\_ \_\_Line of quarter section ... Ft. from ... Line and DRILLING BEGUN TOTAL DEPTH OF WELL TYPE WELL Dry Hole Driller 8380 Log 8354 11-3-82 **ELEVATIONS** D FT. DRLD. - ROTARY TOOLS DRILLING COMPLETED FORMATION AT T.D. K.B. R.F. A 1214 1212.6 From 0 To 8380 11-30-82 Cincinnatian FT. DRLD. - CABLE TOOLS WELL COMPLETED PRODUCING FORMATION(S) B.T. Grd. ε 1197.5 From \_\_\_\_\_ To \_ **PERFORATIONS** CASING, CASING LINERS AND CEMENTING OPEN Ft. Pulled WHERE SET CEMENT SIZE NUMBER DATE INTERVAL PERFORATED 2411 59° HOLES YES NO 13 3/8" 842 900 Sx 9 5/8" 5525 250 Sx 1500 None ALL OTHER OIL AND GAS SHOWS OBSERVED OR LOGGED **GROSS PAY INTERVALS** OIL OR GAS FROM WHERE OBSERVED (X) **FORMATION** TO OIL Gas Log. FORMATION ORGAS DEPTH Sam None Odor Pits Black Lime Gas 5120 X B Unit 6668  $\overline{\mathbf{X}}$ Gas X Strickler Zone Gas 8170 STIMULATION BY ACID OR FRACTURING WATER FILL UP (F.U.) OR LOST CIRCULATION (L.C.) (XI FORMATION F.U. L.C. DEPTH AMOUNT Interval Treated DATE Materials and amount used None None DEPTH CORRECTION DEVIATION SURVEY **PLUGGED BACK** MECHANICAL LOGS, LIST EACH TYPE RUN DEPTH LOGGED INTERVALS DEPTH CORRECT'N RUN AT DEGREES YE\$ NO (X) LOG TYPES Brand X LDT-CNL-GR 100-8354 1926 1926 3/4° Schlumberger Sonic 100-8354 Birdwell MLL-DLL 3400-8354 PRODUCTION TEST DATA OIL - Bbls/day GRAVITY - OAPI COND. Bols/day GAS - MCF/day WATER -- Bbls/day H2S -- Grains/100 cu. ft. B.H.P. AND DEPTH I AM RESPONSIBLE FOR THIS REPORT, THE INFORMATION IS COMPLETE AND CORRECT. 12-29-82 NAME AND TITLE (PRINT) SIGNATURE William E. Booker, Geologist

DEC 27 1982

				ATE OF MICHIGAN		PERMIT NUMBI	EB
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Others Or	n request	PERM		PLUG AND ABA	NUUN	<u></u>	
	DORESS OF PERMITTEE			****			
	c* mar** secon my	conference man		. Mossent, NI 4			
	AND WELL NO.						
Stoda 1	<b>l-7</b>						
LOCATION (V	1 K4 K4 or ather)		SECTION		TOWNS	HIP	COUNTY
			7	т <b>240</b> я <b>80</b>	Chipp		Houseta
TYPE OF WE	LL (Oil, Gas, Dry Hole, etc.)	DATE COMPLETE	D	DATE PLUGGING WILL STAR	T PLUGGING PERMIT	REQUESTED BY	& DATE
Buy Ho	le .	11-30-00		12-1-02	Herr Shed	1	3-30-63
LAST PRODU	CTION				PLUGGING TO BE	DONE BY	
90P0	BWPO	MCFGPD		DATE	Pasylas/Bu	mil	
PERMIT MAIL	ED TO		α	OPIES MAILED TO	<u> </u>		
	tel			Tandan	II		
WLI Imp	in the second						1
			CASING A	IND CEMENTING RECORD		<del></del>	
HOLE DIA	CASING DIA. & WT/FT.	DEPTHS SET		CEMENT QUANTITY, TYPE, AL	XXIIIVE\$	CMT. TOP.	PERFORATIONS
	24"	· 39°	Drive.	<del> </del>		<del>   </del>	
174"	13-3/9" 499	M2*	700 111	39/30 par + 200	ME GLASS A	Sec.	<u> </u>
124	9-5/8" 43/406	5530"	239 ex	Class A		4638*	
86.00	Open Bale to T.	<b>D</b> ,					
	<u></u>	BEOLOGIC DATA; G	AS AND O	K SHOWS; DRILLING AND	COMPLETION DATA:		
CONTINU	TIAL.						
İ							
							;
1							
			PL LIGA	MIG REQUIREMENTS			
Plu	and benitted absence outlined and	to be executed in acco		the provisions of Act 61, P.A. 193	30 as amended and rule	ee and orders ado	nted thereunder
, ,,,	Адм.А. темпокония из поливо в в	TO DE EXECUTED IN MICK	NORKO WILL	tine provisions of Act of, F.A. Is	oo, as allowed, and los	23 210 00003 200	pred thereunds:
Fill o	pen hale with on	neut bettem	to top,	secover from co	aing, par Mi	noval Wel	le
and a second	mants.				•		
			4 <i>-</i>	1000			
Line!	cleanup to be car	distant sh y	in 13	4763.			
•							
							:

\*NOTE: BONDS CANNOT BE RELEASED UNTIL A PLUGGING IS COMPLETED, CELLAR RAT HOLE AND PITS FILLED, WELL SITE RESTORED AND RECORDS FILED, WATER WELLS MUST BE PLUGGED ACCORDING TO RULE 186 OF ACT 294 P.A. 1965, "GROUND WATER QUALITY CONTROL", It is further made a requirement of this permit that the applicant give notice to the public utilities in accordance with Act 53, P.A. 1974 C.L. 460.701 to 460.718 and comply with each of the requirements of the act.

		(signature)		4.4		
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/	In and	011	77	I Ko	huns	
	ZCCVV		1	and the	JULY /	
-	<del>,                                    </del>					_

OFFICE Mt. Pleasant DATE 13-16-62

NOTE: WELL PLUGGING RECORD Form R-7213/10/be filed in TRIPLICATE within 30 days after completion.

8-8-84 STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES GEOLOGICAL SURVEY DIVISION

JAN 1 2 1983 4 1983

EANSING HAS COPY

Mr.	PLEASANT	HAS CONFIL	PLUGGING	RECORD
Ret.	1 Charles	WELL	LUGGING	neconv

PERMIT NUMBER	
36187	_
FIELD NAME	

(Submit in TRIPLIC	36187					
		F	NUG 0	1984	FIELD NAME	
COMPLETE NAME(S) AND ADDR	ESS OF WELL OWNER					
Willmet, Inc.						
COMPLETE LEASE OR FARM NA	ME(S)					WELL NUMBER
Stein						1-7
WELL LOCATION					TOWNSHIP	COUNTY
NE ¼ NW ¼	SE % SEC. 7	T. 16N	R.	8W	Chippewa	Mecosta
TYPE OF WELL (Oil, Gas, Dry Hole	Tr	OTAL DE	PTH	FORMATION		
Dry Hole	}	8380		Cincinnati	an.	
DATE PLUGGING STARTED				TIVE(S) WHO ISSUED	PERMIT OR WITNESSED	
12-1-82 12-2-82			LUGGING			

JAN

	CASING	RECORD	
SIZE CASING	DEPTH SET	AMOUNT RECOVERED	SHOT OR RIPPED
24"	59 <b>'</b>		
13 3/8"	842 *	900 Sx	
9 5/8"	5525 1	250 Sx	1500
<del>-</del>		1	

BRIDGES OR PLUGS							
TYPE (Brush, Stone, Cement, Mechanical, etc.)	DEPTH PLACED	SACKS OF CEMENT AND ADDITIVES					
Cement	5400-8350	460 Sx POZ					
Cement	0 -5400	1635 Sx Cl A					
		<del> </del>					

Were tools, tubing, casing, etc., lost or left	<u> </u>		If yes, give details:
in the hole before or during plugging?	YES	X NO	
Did a Service Company pump mud,			If yes, give name and address:
spot cement, or set bridge plugs?	X YES	☐ NO	Dowell
Was the well plugged by a Company or			If yes, give name and address:
Contractor other than Owner or Operator?	YES	X NO	
Representatives of Owner, Operator, Company, oplugging:	or Contractor v	who witnessed	Marvin Woods
DESCRIBE IN DETAIL HOW WELL WAS PLUGGED			5/00 care out out out 11-d 15001
			5400, came out, cut and pulled 1500' ted to surface with 1635 sacks.
OI 9 5/0 . Rail dilli pipe	e LO 3400	and cemen	Leu to surface with 1033 sacks.
		<del></del>	
		<del></del>	
			(USE REVERSE SIDE IF NEEDED)
		*	

"I state that I am authorized by said Owner or Oper tion, and that the facts stated herein are true, correc		is report was prepared under my supervision and dire owledge."
NAME AND TITLE (Typed or Printed) William E. Booker, Geologist		COMPANY NAME AND ADDRESS Strickler Geological Services, Inc
SIGNATURE & B. B.	DATE (Month, Day, Year) 12-29-82	1425 S. Mission Mt. Pleasant, MI 48858

	OPERATORS USE	•
Description of Detail (cont.) or Other Supplemental Data:		
Market and the second s		
	EPARTMENT USE ONLY	
Supplemental Plugging Data and Site Conditions:		
9/27/83 Clean, recontoured		
The second secon		
		· · · · · · · · · · · · · · · · · · ·
FINAL INSPECTI	ONS BY DEPARTMENT REPRESENTATIVES	
SIGNATURE	DIVISION	DATE
James M. Ibinous	Conformal Survey	8/1/84

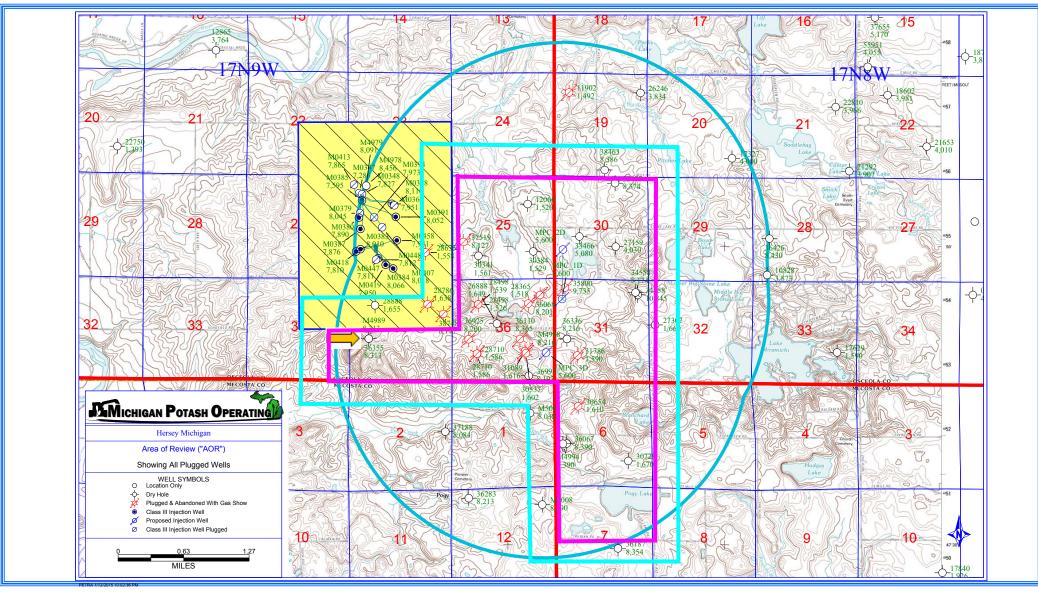
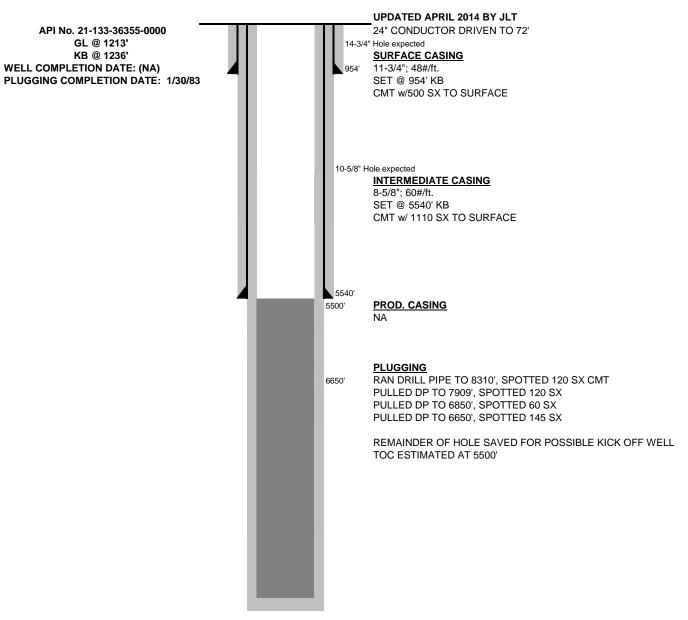


Figure B4. Map showing all plugged wells, shallow (that do not penetrate any confining horizon) or deep (that penetrate confining horzion) within the area of review. Total Depths are listed. There are several shallow Michigan Stray wells that do not penetrate the injection or confining horizon.

#### **STATE-HERSEY 2-35**

#### NE NW SW Sec 35 T17N R9W OSCEOLA COUNTY, MI

#### **CURRENT WELLBORE DIAGRAM**



TD @ 8310' KB

#### STATE-HERSEY 2-35 WELL HISTORY

<u>DATE</u> 1/2/1983	DESCRIPTION SPUD.
1/28/1983	DRILLING COMPLETED. FORMATION AT TD CINCINNATIAN. 24" CONDUCTOR DRIVEN TO 72' 11-3/4" SET AT 954'; 550 SX 8-5/8" SET AT 5540'; 1110 SX
1/29/1983	PLUGGING STARTED RAN DRILL PIPE TO 8310' AND SPOTTED 120 SX, PULLED DRILL PIPE TO 7909' AND SPOTTED 120 SX PULLED DRILL PIPE TO 6850' AND SPOTTED 60 SX PULLED DRILL PIPE TO 6650' AND SPOTTED 145 SX
	REMAINDER OF HOLE TO BE SAVED FOR POSSIBLE KICK OFF WELL
1/30/1983	PLUGGING COMPLETION DATE

#### FEB 2 5 1983

STATE OF MICHIGAN
DEPARTMENT OF NATURAL RESOURCES

LOG OF OIL, GAS, DISPOSAL OR STORAGE WELL (ACT 61)

- 1	PERMIT NUMBER
	36355
j	
	DESPENING SEDMIT NUMBER

Submit in DUPLICATE Within 30 Days after Well Completic						tion		DE	EPENING F	PERM	IT NUN	MBEA				
NAME(S) & ADDRESS OF OWNER(S) SHOWN ON PERMIT				NAME & ADDRESS OF DRILLING CONTRACTOR(S)												
Willme	Willmet, Inc., Rousek + Muskegon Dev.					T. D. Provins Drilling Company										
2250 E	2250 Enterprise Drive					2113 Enterprise Drive										
Mt. Pl	easar	ıt,	MI 488.	58			Mt.	Pleasan	ıt,	MI 488	358					
LEASE NAM				SHOWN ON	PERMIT							ECTIO			LLED	)
State-			#2-35													
SURFACE LO		N		SECTION		TOWNSHI	P	RANGE			1	VNSHIE		E		
NE NW					35	17N		9	W			Hers				
FOOTAGES	t. fram	]	North L	ine and	354	Et. from	est/West) West	in <b>e of</b> quarte	er s	ection		Osce				
SUBSURFAC	ELOCA	ATIC	N	SECTION		TOWNSHI	Р	RANGE			TOV	VNSHIR	NAM	IE.		
<u></u>	•			<u> </u>		<u></u>					<u> </u>					
FOOTAGES			th/South)			• •	ast/West)				COL	INTY	AME			
L									er :	section	<b></b>					
DRILLING		N			PTH OF WE		TYPE WEL		ند حد	,	}					
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A DRILLING	з сомя 8-83	LET	ED	F - '	ON AT T.D.			ROTAR			K.8.			R.F.	125	
}					cinnatia		1	) To_		=		1236			235	
E WELL CO	MPLET	ED		PRODUCI	NG FORMAT	10N(S)		CABLE			R.T.	•		Grd.	213	
				NOI			From	То _			<u> </u>				<u> </u>	
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8 5/8"		<u>554</u> (	<i>J</i>	7.7	.0 Sx	ļ										
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L	· <del>-</del> ·-			L			J									
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		-					City Do	Gas	$\dagger$	4100		1			X	
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DATE	Inte	rval	Freated	Materia	ls and amount	used	FORM	ATION	۶	.U. L.C.	DEP	тн		AMO	UNT	
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	MECHA	MIC	AL LUGS, I	IST EACH			···						<del></del>			
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Birdwell			Sonic			- 8313			4	5100	<del> </del>	1°	<b> </b>			
O- Sheet			DLL-ML	<u></u>	. 3300 -	- 8313	<b> </b>	· <del> </del> -	╣	6500°	+	0°	<b> </b>		+	
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	[3								"	Zo - Giaili	J/ 100		9.ET.			
									I							

I AM RESPONSIBLE FOR THIS REPORT. THE INFORMATION IS COMPLETE AND CORRECT.

OATE
2-21-83

NAME AND TITLE (PRINT)
William E. Booker, Geologist

SIGNATURE

SIGNATURE

SIGNATURE

SOURCE

STATE OF MICHIGAN	TYPE OR PRINT
REQUEST FOR TRANSFER OF A PERMUTA,	PERMIT NO WELL TYPE
STATE OF MICHIGAN REQUEST FOR TRANSFER OF A PERMUTA SUBMIT 4 COPIES TO: Department of Natural Resources Geological Survey Division Roy 30028	36355 Dry Hole
Geological Survey Division  Box 30028	FIELD NAME
Lansing, Michigan 48909	Hersey-Clinton
Filing for change of ownership of well is required in accordance with ACI	St. Hersey 2-35
61, P.A. 1939 and Act 315 P.A. 1969, as amended, and Administrative	WELL LOCATION
Rules promulgated thereunder.	NE 1/4 NW 1/4 SW 1/4 SECTION 35 T 17N A 9W
	TOWNSHIP COUNTY
TRANSFER OF A PERMIT FROM:  NAME(S) OF SELLING OWNER(S)	Hersey Osceola
Adolph Rovsek, Muskegon Development Corp. & W	lillmet, Inc.
One Jackson Square, Suite 600, Jackson, MI 4	19201 (517) 782-8145
All operating rights are discharged by.	
Owner(s) Representative(s)	Signiturets) Date(s)
Willmet, Inc., Richard M. Rompala	CMConpela 3/31/88
Muskegon Development Corp.	William Chamber
Adalah Baysat	
Adolph Rovsek	Adolph Rovsek
	Addipit Novsek
ELIGIBILITY FOR PERMITS IS CONDITIONED UPON COMPLIANCE WITH	
NATURAL RESOURCES. PERMITS WILL NOT BE GRANTED TO PERSO	NS NOT IN COMPLIANCE.
NON-SUBMISSION AND/OR FALSIFICATION OF THIS INFORM	
NAME(S) OF ACQUIRING OWNER(S)	A PERMIT TO:
Marathon Oil Company	
ADDRESS Number and Street City or Town State Zip Code Telephone	
One Jackson Square, Suite 600, Jackson, MI 4	9201 (517) 782-8145
(We) (I) have acquired the well under this permit and assume full responsi	bility for the drilling, operation, and abandonment in conformity with the
law, regulations and orders.	
SURETY BOND: SINGLE WELL ATTACHED BONDING	CO SAFECO Insurance Company of America  UMBER 5194219
All operating rights and responsibilities are assumed by	
Owner(s) Representative(s)	Signature(s) Date(s)
the same of the sa	
Marathon Oil Company, Donald R. Hall 1213	March 28, 1988
FOR DEPARTMENT OF NATUR	IAL RESOLUBCES LISE ONLY
TON BELANTINENT OF WATER	TAL RESOURCES USE UNLY
	DISTRIBUTION BY DNR
= 0.07	Lansing
11 0 V V/	☐ Acquiring Owner
APPROVED ALUE	7/6/8 Selling Owner
Dature .	□Field

# This document paid for with State funds

#### STATE OF MICHIGAN DEBARTMENT OF NATURAL RESOURCES GEOLOGICAL SURVEY DIVISION

PERMIT NUMBER	36355
---------------	-------

FIELD NAME PERMIT TO PLUG AND ABANDOR 1 6 1983

Hersey

NAME AND ADDRESS OF PERMITTEE

Division Office -- 2 copies

Field Office -- File copy

Others -- On request

# R DISTRIBUTION Permittee -- Orig & 1 copy

LEASE NAME AND WELL NO State Hersey #2-35

LOCATION (% % % or other)

NE NW SW.

SECTION 35

17Na

9W

Hersey

Osceola

TYPE OF WELL (Oil, Gas. Ory Hole, etc.) Dry hole

DATE COMPLETED 1/28/83 DATE POUGGING WEST START 1/29/83

PLACGING PEPHAT PROJESTED BY & DATE M. Woods 1/28/83

LAST PRODUCTION

BUPD

MOFGPO

T. G. Graff of M. M. M. M. J. F.

PLUSGING TO BE DUNE BY Provins #9

PERMIT MAILED TO

HOLE DIA

Willmet

	CASING AND CEMENTING RECORD		
DEPTHS SET	CEMENT QUANTITY TOPE ACCIDITIES	CMT TOP	PERFORATIONS
72			
954	550	surf	
5544	1100	70	
	рертня бет 72 954 5544	DEPTHS SET CEMENT QUANTITY TYPE ADDITIVES 72 954 550	DEPTHS SET CEMENT QUANTITY TYPE ADDITIVES CMY TOP 72 954 550 Surf

GEOLOGIC DATA; GAS AND OIL SHOWS; DRILLING AND COMPLETION DATA:

CONFIDENTIAL

PLUGGING REQUIREMENTS:

Progging requirements outlined are to be executed in accuration with the provisions of Arms of Part 6.5 of a periodic of these and profess adented treseunder

PI AS PER MINERAL MELLS:

Spot 120 sx cmt. at 8310'; spot 120 sx cmt. at 7909'; spot 60 sx at 6850' (for possible KOP); spot 145 sx at 6650 (TOC 5500') Remainder of hole to be saved for possible kick off well.

NOTE BONDS CANNOT BE RELEASED UNTIL A PLUGGING IS COMPLETED CELLAR RAT HOLE AND PITS CICED. WELL SITE RESTORED AND RECORDS FILED, WATER WELLS MUST BE PLUGGED ACCORDING TO RULE 166 OF ACT 294 P.A. 1965, I GROUND WATER QUALITY DON'TROL ... It is further made a rendurement of this permit that the applicant give notice to the public utilities in accordance with Act. 53, P.A. 1974, C.L. 460-701, to 460-718, and comply with each of the requirements of the act.

AUTHORIZED BY (signature)

OFFICE Cadillac D#6

3/14/83

## STATE OF MICHIGAN

LANSING HAS COPY

**DEPARTMENT OF NATURAL RESOURCES** FEB 2 5 1983 CADILLAC HAS COPY **GEOLOGICAL SURVEY DIVISION** PERMIT NUMBER WELL PLUGGING RECORD (Submit in TRIPLICATE Within 30 Days After Plugging is Completed) FEB 25 1983 36355 FIELD NAME COMPLETE NAME STAND ADDRESS OF WELL OWNER Willmet, Inc., 2250 Enterprise Drive, Mt. Pleasant, MI 48858 COMPLETE LEASE OR FARM NAME(S) WELL NUMBER 2 - 35State-Hersey COUNTY WELL LOCATION TOWNSHIP NE ¼ SW % SEC. 35 R. 9W NW ¼ T. 17N Osceola Hersey TYPE OF WELL (Oil, Gas, Dry Hole, etc.) TOTAL DEPTH FORMATION Dry Hole 8313 Cincinnatian DEPT. REPRESENTATIVE(S) WHO ISSUED PERMIT OR WITNESSED PLUGGING DATE PLUGGING STARTED DATE PLUGGING COMPLETED 1-29-83 1-30-83 Snider

	CASINO	RECORD	
SIZE CASING	DEPTH SET	AMOUNT RECOVERED	SHOT OR RIPPED
24"	72'		
11 3/4"	9541		-
8 5/8"	5540		
<del></del> -			
		<u> </u>	

	BRIDGES OR PLUG	S
TYPE (Brush, Stone, Cement, Mechanical, etc.)	DEPTH PLACED	SACKS OF CEMENT AND ADDITIVES
Cement	7909-8310	120 Sx
Cement	6850-7909	120 Sx
Cement	6650-6850	60 Sx
Cement	5500-6650	145 Sx

YES YES	□ NO  XX NO  who witnessed	If yes, give name and address:
ractor v	who witnessed	Marvin Woods
		rill pipe to 7909 and spotted 120 sx, led drill pipe to 6650 and spotted
		(USE REVERSE SIDE (F NEEDED)
_		tted 60 sx, pul

"I state that I am authorized by said Owner or Operator to make this report; and that this report was prepared under my supervision and direction, and that the facts stated herein are true, correct and complete to the best of my knowledge." COMPANY NAME AND ADDRESS Strickler Geological Services, Inc.

SIGNATURE DATE (Month, Day, Year)

1425 S. Mission Mt. Pleasant, MI 48858

NAME AND TITLE (Typed or Printed)

William E. Booker, Geologist

CERTIFICATION

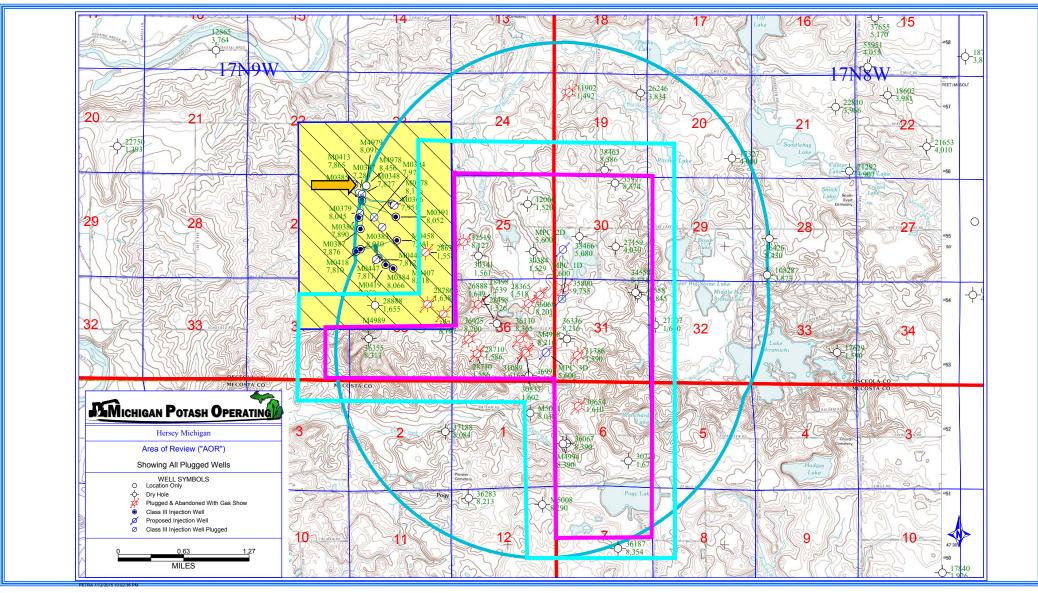
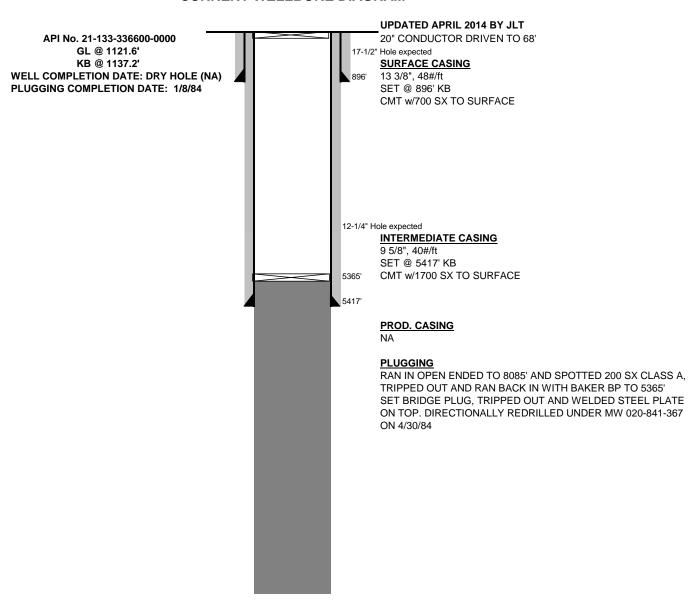


Figure B4. Map showing all plugged wells, shallow (that do not penetrate any confining horizon) or deep (that penetrate confining horzion) within the area of review. Total Depths are listed. There are several shallow Michigan Stray wells that do not penetrate the injection or confining horizon.

#### **THOMAS 1-26**

#### NE NW NW Sec 26 T17N R9W OSCEOLA COUNTY, MI

#### **CURRENT WELLBORE DIAGRAM**



TD @ 8085' KB

#### **THOMAS 1-26 WELL HISTORY**

DATE

3/12/1983

SPUD.

1/6/1984

DRILLING COMPLETED. FORMATION AT TD CABOT HEAD.
20" CONDUCTOR SET AT 68'
13 3/8" SET AT 896'; 700 SX
9 5/8" SET AT 5417'; 1700 SX

1/7/1984

PLUGGING START DATE
RAN IN OPEN ENDED TO 8085' AND SPOTTED 200 SX CLASS A, TRIPPED OUT AND RAN BACK IN WITH BAKER BRIDGE PLUT TO 5365' - SET BRIDGE PLUG, TRIPPED OUT AND WELDED STEEL PLATE ON TOP. DIRECTIONALLY REDRILLED UNDER MW 020-841-367 ON 4-30-84.

STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES · LOG OF OIL, GAS, DISPOSAL OR STORAGE WELL (ACT 61) Submit in DUPLICATE Within 30 Days after Well Completion

PERMIT NUMBER	
36600	
DEEPENING PERMIT NUMBER	

								ľ								
NAME(S) & AD	DRESS	OF OWNERS	S) SHOWN C	N PERM	ıΤ	1		DDRESS OF								
PPG O11	& Ga	s Co., In	nc.			T. D. Provins Drilling Company										
2258 En	terpr	ise Drive	9			2113 Enterprise Drive										
Mt. Ple	asant	, MI 488	358			]	Mt. P	leasant	, MI	48						
LEASE NAME			SHOWN ON	PERMIT									NALL		LLED	1
Thomas													NO			
SURFACE LO	CATION	1	SECTION		TOWNSH			RANGE	• • •		TOW		PNAM	IE		
NE NW N				L/N			9W		1	Her						
	FOOTAGES (North/South) (East/West)						cou		NAME							
	Ft. from North Line and 864 Ft. from West Line of quarter section  REACE LOCATION SECTION TOWNSHIP RANGE			n	- <del> </del>		eola PNAM									
SUBSURFACE	LOCA	TON	SECTION		TOWNSH	12		AANGE			lon	11421111	r IVAIV	ic.		
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9 5/8		5417	1700	sx												
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		<u></u>			Burnt	вті		Gas	798	<u> </u>	L	L	L		XX	
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Birdwell		Sonic		89	7 - 8091				370	00	3/4	40				
9		DLL-MLI		. 3200	) - 5405				509	33	1/	40				
Q				5420	0 - 8076				78	-6	21/2	•				
													·			
					PRODUCTION											
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I AM RESPONS	IRLE E				ATION IS CON	APLE								Α		
DATE NAME AND TITLE (PRINT)					SIGNATOR	TE 1//	~			0	- //		1			

NOTICE REPORT COMPLETE SAMPLE AND FORMATION RECORD AND DRILL STEM TEST INFORMATION ON REVERSE SIDE

William E. Booker, Geologist

2/15/84

R - 7210 Rev. 3/77

## DEPARTMENT OF NATURAL RESOURCES

WELL PLUGGING RECORD
(Submit in TRIPLICATE Within 30 Days After Plugging is Completed) 1985

Redrill

<del></del>	
PERMIT NUMBER	
36600	
TATA DALA MAR	

			Regulator	y Control Unit		· <del></del>	
		ESS OF WELL OWNE	F. 17				**************************************
PPG O1	1 & Gas Co.	. Inc., 2258	Enterprise Dr	rive, Mt. Pleas	sant, MJ	1 48858	
COMPLETE LEAS	SE OR FARM NAM	HE(S)					WELL NUMBER
Thomas					T-AMAICI		1-36
WELL LOCATION		יייי א כבר אה	T. 17N	1 R. 9¥	TOWNSH		OSCADIA
NE %	NM K	NW % SEC. 26	1. 1/1		Hers		Osceola
	(Oil, Gas, Dry Hole, arily Abando			TOTAL DEPTH	FORMAT	rion bot Head	
DATE PLUGGING		DATE PLUGGING	COMPLETED		_1		MIT OR WITNESSED
1-7-84		1-8-8	84	PLUGGING	Moss		MII On William
<del></del>	CASIN	G RECORD		1	B'	RIDGES OR PLU	roe.
		AMOUNT	SHOT OR	TYPE (Brush, S		DEPTH	SACKS OF CEME
SIZE CASING	DEPTH SET	RECOVERED	SHOT OR RIPPED	Cement, Mechanic		PLACED	AND ADDITIVE
20"	68			Cement		8085	200 sx C1 A
13 3/8"	898			Baker Bridg	ge Plug	536 <b>5</b>	
9 5/8"	5417						
-		,					
							<u>T</u>
	ing, casing, etc., lo			If yes, give	e details:		
in the hole before	ore or during plugg	/ging?	YES W	.10			
				<del></del>	<del></del>		
	~ ~~			** · · · · · · · · · · · · · · · · · ·			
	ompany pump mu				re name and		i i .
spot cement, or	set bridge plugs?		xx YES □N	NO DRIT	liburton	1	
0 -1.	- Comp			15 mar min			
•	ugged by a Compa		The Pop	• • •	e name and	/ address:	
Contractor our	er than Owner or (	Operator r	YES XX	10 ·			
Deverentatives	-4 Owner Opera	ator, Company, or C	Contractor who wi	innered Carl (	Cookingh	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	
plugging:	Of Owner, Op	(III) COMpany, .	Difficultive state	(11693en	200Amo	igu .	
N. 433 - 2						***************************************	
DESCRIBE IN DE	TAIL HOW WELL V	WAS PLUGGED			<del></del>		
			enotted 200 /	sx Class A, tri	inned or	it and ran	back in with
Raker_t	Aridoe Dlug	to 5365 - se	t bridge plu	g, tripped out	and wel	ded steel	nlate on
topJ	Directionall	- redrilled	under MW 020	-841-367 on 4-3	<u>የ</u> በኋ <mark>ያ</mark> ኛ		
<del></del>	Like Salamanananananananananananananananananan	y EBUGETEE	With the same		<u> </u>		
						·	
						· - · -	
_							
						(USE REVE	RSE SIDE IF NEEDED)
<del></del>			CERTI	FICATION	<del></del>		
"I etate that I ar	m suthorized by /	said Owner or Ope			renort was	prepared under	r my supervision and d
				o the best of my know		blehm	my supervise
	E (Typed or Printed			C	COMPANY N	NAME AND ADD	
	m E. Booker,						al Services, In
SIGNATURE	1 300 222	•	DATE	(Month, Day, Year) 14		_	!
7-11	. 0	Rh	1			sant, MI 4	8858

 $\frac{7/29/85}{\text{OK for GS approval.}}$  Location re-drilled under MWO20-841-367.

John Monden

Geology.

7/29/85

CECLOGIAL SURVEY

STATE OF MICHIGAN

AU 0 0 5 198 DEPARTMENT OF NATURAL RESOURCES

GEOLOGICAL SURVEY DIVISION

Regulatery Contemplation TO PLUG AND ABANDON

PERMIT NUMBER

36600

FIELD NAME

REVISED -

LNIVS/16

Hersey

Halliburton

						_
SMAN	ONA	ADDRESS	OF	PERM	HITTE	Ε

PPG 011 & Gas Co., Inc.

LEASE NAME AND WELL NO.

Permittee -- Orig & 1 copy

Division Office - 2 copies

Field Office - File copy

Others -- On request

DNR DISTRIBUTION

Thomas #1-26

LOCATION 14 14 W or other

COUNTY SECTION TOWNSHIP NE NW NW. 26 117N R 9W Hersey Osceola TYPE OF WELL (Oil. Gas. Dry Hole, etc.) DATE COMPLETED DATE PLUGGING WILL START PLUGGING PERMIT REQUESTED BY & DATE Dry hole 1/7/84 1/7/84 Don Smith 1/7/84

LAST PRODUCTION PLUGGING TO BE DONE BY

MCEGPD BORD BWPD DATE

PERMIT MAILED TO COPIES MAILED TO

CASING AND CEMENTING RECORD								
ET CEMENT QUANTITY, TYPE, ADDITIVES CMT. TOP. PERFORATION	DEPTHS SET	CASING DIA. & WT/FT.	HOLE DIA.					
	- 681	20"						
	8981	13-3/8"						
	5417'	9-5/8"						
	5417'	9-5/8"						

GEDLOGIC DATA; GAS AND OIL SHOWS; DRILLING AND COMPLETION DATA:

CONFIDENTIAL

#### PLUGGING REQUIREMENTS'

Plugging requirements outlined are to be executed in accordance with the provisions of Act 61, P.A. 1939, as amended, and rules and orders adopted thereunder.

RIH. Spot 200 sx Cl A cmt. 8085'; set Baker BP at 5365'; remainder of hole used for directional redrill under MW020-841-367.

\*NOTE. BONDS CANNOT BE RELEASED UNTIL A PLUGGING IS COMPLETED, CELLAR RAT HOLE AND PITS FILLED, WELL SITE RESTORED AND RECORDS FILED. WATER WELLS MUST BE PLUGGED ACCORDING TO RULE 166 OF ACT 294 P.A. 1965, "GROUND WATER QUALITY CONTROL". It is further made a requirement of this permit that the applicant give notice to the public utilities in accordance with Act 53, P.A. 1974 C.L. 460.701 to 460.718 and comply with each of the requirements of the act.

AUTHORIZED BY (signature) Cadillac D#6 7/26/85

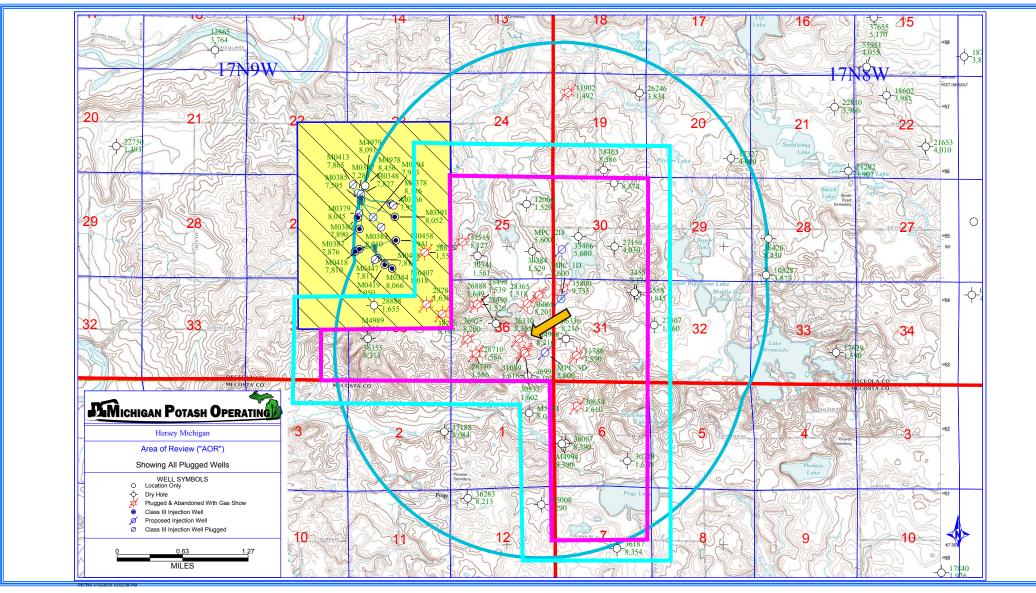


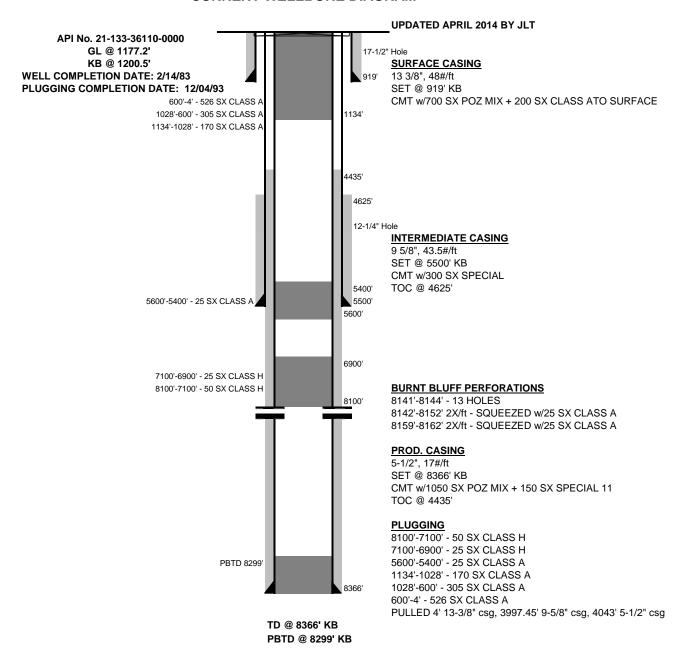
Figure B4. Map showing all plugged wells, shallow (that do not penetrate any confining horizon) or deep (that penetrate confining horzion) within the area of review. Total Depths are listed. There are several shallow Michigan Stray wells that do not penetrate the injection or confining horizon.



#### **THOMPSON 3-36**

#### NE NW SE Sec 36 T17N R9W OSCEOLA COUNTY, MI

#### **CURRENT WELLBORE DIAGRAM**



#### **THOMPSON 3-36 WELL HISTORY**

**DESCRIPTION** DATE SPUD. 9/25/1982 2/14/1983 DRILLING COMPLETED. FORMATION AT TD CINCINNATIAN. PRODUCING FORMATION CLINTON. 13 3/8" SET AT 919'; 900 SX 9 5/8" SET AT 5500'; 300 SX 5-1/2" SET AT 8366'; 1200 SX 4/22/1985 REWORK START DATE MIRU, KILL WELL, ND TREE, NU BOP's UNSEAT PACKER AND CIRC. HOLE CLEAN TO 8210'. TRIP OUT, LD PACKER, PU CEMENT RETAINER, TRIP IN TO 4000' 4/23/1985 4/24/1985 SET RETAINER AT 8115', RUN INJECTION TEST, SQUEEZE PERS 8142-52' \* 8159-62' WITH 25 SX CLASS A. TOOH, WOC. DRILL OUT SQUEEZE. CLEAN OUT HOLE TO 8299 (PBTD) 4/25/1985 4/27/1985 SPOT ACID. PERF 8141-44' (13 HOLES). TIH TO 8095. 4/28/85 & SWAB AND FLOW TEST; 3-400 MCF & 25 BBLS WATER; 4/30/85 DATE LAST PRODUCED (21 MDF/D & 42 BWPD 5/1/1987 TEMPORARILY ABANDON WELL, SECURE WELLHEAD WITH CHAINS AND LOCK. DEPRESSURIZE SURFACE EQUIPMENT. EXTENSION GRANTED TO JUNE 13, 1989, FOR DECISION AS TO PLUG OR REQUEST TO HOLD AS TA FOR A BD WELL IN PERMISSION GIVEN TO TEMPORARILY ABANDON WELL TILL JUNE 13, 1991 FOR POSSIBLE RECOMPLETION AS A WATER DISPOSAL WELL. 11/8/1993 PLUGGING START DATE 8100'-7100' - 50 SX CLASS H 7100'-6900' - 25 SX CLASS H 5600'-5400' - 25 SX CLASS A 1134'-1028' - 170 SX CLASS A 1028'-600' - 305 SX CLASS A 600'-4' - 526 SX CLASS A; CUT 13-3/8" OFF 5' BELOW GROUND AND WELDED PLATE ON TOP

PULLED 4' 13-3/8" csg, 3997.45' 9-5/8" csg, 4043' 5-1/2" csg

12/4/1993 PLUGGING COMPLETION DATE

FEB 2 2 1983

#### STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES

PERMIT NUMBER	
36110	
DEEPENING PERMIT NUMBER	

LO	G OF O	IL, GAS, DI	SPOSAL	OR STORA	GE WELL	_ (ACT 61	)					6110				
	Subr	mit in DUPLICA	TE Within	30 Days after	Well Comple	tion	•		DEEPE	NING	PEAM	IT NU	MBER			
	ADDRESS	OF OWNER(S	) SHOWN	ON PERMIT		NAME & A	00	RESS OF Provi	ns D	LING	CONT	RACTO Co.	OR(S)			
	-	rise Driv	ve .			2113 Enterprise Drive										
	-	it, MI 48				J		easan				;				
	E(S) & WE	LL NUMBER	SHOWN O	NPERMIT							í		NALL		ILLED	)
SURFACE L	OCATION		SECTION		TOWNSHI		Т	RANGE					PNAM			
NE NW			ı	36	T171		].		R9W		ľ	Hers				
FOOTAGES					(E	ast/West)		·····			cou	NTY	NAME			
		North L	ine and	850	_Ft. from_	lest_L	ine	of quarte	rsection	วก		Osce	ola			
SUBSURFAC	CE LOCAT	ION	SECTION		TOWNSHI	P	TF	RANGE			TOW	IHRAN	PNAM	E		
FOOTAGES	{N	orth/South)	l		<u> </u> (ε	ast/West)			·~·		cou	NTY	NAME			
	Ft. from	L					ine	of quarte	er secti	on						
{	G BEGUN		1 ,	EPTH OF WE		TYPE WEL	as									
DRILLIN	25-82	ETED		JON AT T.D.	0302	FT. DRLD			7.700		K.8.	_	LEVA	R.F.	s 	
Δ. Ι	31-82			cinnatia	n	From							0.5		199.	2
	MPLETEC -14-83			NG FORMAT nton	ION(S)	FT. DALD					A.T.			Grd.	177.	2
	CASING,	CASING LINE	RS AND C	EMENTING					P	ERFOR	RATIO	NS				
SIZE	WHE	RESET	CEM	IENT	Ft. Pulled	1		NUMBEI	R						OPE	EN
13 3/8		919'		900		DATE	_	HOLES		NTER	VAL P	ERFO	RATE	D	YES	NO
9 5/8		55001		300		1-5-8	3	2x/f	t	81.	59 -	816	2			XX
5 1/2		83661	1	200		1-58	3	2x/f	t	814	42 -	815	2		XX	
						<b></b>		! 	<del></del>							
	L				I	ш							<del>-</del>	1		L
	GROS	SS PAY INTER	VALS	·		ALL OTHE	R O	IL AND	GAS S	HOWS	OBSE	RVEO	OR LO	OGGE	D	
FORMA		OIL OR GAS	FROM	то	5054	ATION		OIL	}	Ď.	Sam-		E OBS			6:0
Clinto	n	Gas				ATION		RGAS	L	PTH.	ples	Odor	Pils	Mud Line	Gas Log.	Fill Up
					Travers			Gas	34		<u> </u>				X	ļ
		<u></u>	<u></u>	} <del>-</del>	Reed Ci	<del></del>		Gas Gas	41						X	
			L	Ll	30u1 20	nie 1		Gas	4/					<del></del>	L <u>^</u> _	LJ
	STIMULA	TION BY ACI	D OR FRA	CTURING		WAT	ER	FILL UP	(F.U.)	OR LO	OST CI	RCUL	OITA.	<b>V</b> {L.C	.) (X)	
DATE		1 Treated		ils and amount		FORM		ION	F.U.	L.C.	DEPT	LH		AMO	UNT	
1-6-83	814	2-8152	Acid	500 Gals	3	None										
						<u> </u>			<del>                                     </del>							
	·															

DEPTH CORRECTION D	DEVIATION SURVEY	PLUGGED BACK
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8rand	(x)	LOG TYPES	LOGGED INTERVALS	DEPTH	CORRECT'N	RUN AT	DEGREES	YES	NO	DEPTH
Schlumberger	X	LDT-CNL-GR	200-8362			2700	1/2°	Х		8247
Birdwell		DLL-MLL	3300-8362			5100	3/4°			
Ŷ		Sonic	. 200-8362			7461	1°			
Ã				}		8340	1°			

#### PRODUCTION TEST DATA

Last Perf.

OIL - Bbis/day	GRAVITY - OAPI	COND. Buis/day	GAS - MCF/day	WATER Bbls/day	H2S - Grains/100 cu. ft.	B.H.P. AND	DEPTH
		Ni1	3000	2	Ni1	4659	8152

( AM RESPONSIBLE FOR THIS REPORT. THE INFORMATION IS COMPLETE AND CORRECT.

				M	L	
OA	TE	NAME AND TITLE (PRINT)	SIGNATURE			
100	~ 15 00		BIGNATURE		_ //	j
l	2-15-83	William E. Booker, Geologi	st ! ! ! !!!	,	2//	1
Ĭ	5 00		1 1111111111111111111111111111111111111	Man 1.	1,001	_

#### DEPARTMENT OF NATURAL RESOURCES Geological Survey Division

### REQUEST FOR CHANGE OF OWNERSHIP OF A PERMIT (Submit all copies)

AUG 1 1983

R-7214 (Rev. 10-79)

Please Change:		
Permit No. 36110 Type Well Oil & o	Gas Field	Name Hersey-Clinton Pool
Owned by Willmet Inc.		
Address 2258 Enterprise Dr. Mt. Pleasant, 1 (street) (town)	MI 48858 (state) (zij	(517) 773-3949 p) (phone)
for Thompson	No. 3-36 locate	ed in the NE 4 NW 4 SE 4
section 36 , T. 17N , R. 9W , Hersey	Township,	Osceola County,
to PPG Oil & Gas Co., Inc.		
to PPG Oil & Gas Co., Inc. (acquiring owner-com		)
All operating rights are discharged by (us) (me	_	
(Owner) (Representative)	(Signingare	Metyger 7-19-83
Willmet, Inc.	Constate	Mygn 7-19-83
		N
THE SUPERVISOR IS PROHIBITED BY STATUTE FROM IS	SILING A PERMIT TO	ANY PERSON WHO IS NOT IN
COMPLIANCE WITH THE PROVISIONS OF THE ACT, THE		
VISOR OR THE NATURAL RESOURCES COMMISSION. ELI	GIBILITY FOR PERMI	TS IS CONDITIONED ON COM-
PLIANCE WITH SUCH RULES AND ORDERS IN A DILIGEN	T MANNER AND IN ACC	CORDANCE WITH ACCEPTED
OIL FIELD PRACTICE.		
(We) (I) have acquired the well under this perm	it and accume full	responsibility for drill-
ing, operation, and abandonment in conformity w		
by the Supervisor of Wells. The bond(s) requir		
PPG 0il & Gas Co., Inc.  (acquiring owner-com	mtata namaa ntagaa	
Address 2258 Enterprise Dr., Mt. Pleasant, I (street) (town)	MI 48858 (state) (zij	(517) 773-3949 (phone)
All operating rights and responsibilities are a		•
		_
(Owner) (Representative)	(Signature)	(Date)
PPG Oil & Gas Co. Inc.	Mark to	William 7-483
	,,	15
THE DEPARTMENT OF	NATURAL RESOURCES	DNR USE ONLY
		White, Lansing
Approved. Selan O. Lankauski	AUG 9 1983	Yellow, Acquiring Owner Pink, Selling Owner
(Siggarore)	(Date)	Blue, Field

## STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES SUPERVISOR OF WELLS

## GEOLOGICAL SURVEY

MAY 0 6 1985

#### **WELL REWORK RECORD**

FILE IN DUPLICATE WITHIN 30 DAYS AFTER COMPLETION OF REWORK OR DESPENING REGulatory Control 1

	(Replac	285 (US 38)	Control Unit
PERMIT NUMBER 36110	DEEPENING PERMIT NUMBER	FIELD NAME Hersey	
NAME AND ADDRESS OF V	WELL OWNER	l hersey	
	., Inc., 2258 Enterprise Driv	e, Mt. Pleasant, Michigan	48858
LEASE OR FARM NAME			WELL NUMBER
Thompson			3-36
WELL LOCATION	SECTION	TOWNSHIP	COUNTY
NE NW SE	36 T. 17N		Osceola
1.2	il, Gas, Gas Storage, Brine Disposal, Water	TOTAL DEPTH AFTER REWORK	MECHANICAL LOGS RUN
Injection, etc.) Gas		8366'	None
WELL COMPLETED IN (Nan	ne Rock Formation and Zone of Completion)	DATE REWORK COMMENCED	DATE REWORK COMPLETED
Clinton/Burnt Bl		4-22-85	4-30-85
NAME AND ADDRESS OF C Lease Management	CONTRACTOR , Mt. Pleasant and Halliburto	n, Mt. Pleasant	

If plugged, how
ì
_

Ca	sing	Cen	nent	Perfor	ations	Acid or Fractu	1(6	Perforations
Size	Depth	Sacks	Туре	From	To	Treatment Rec	ord	If plugged, how?
				8142	8152			Squeezed
				8159	8162			Squeezed
				8141	8144	500 Gal. 20%	4-27-85	

#### DESCRIBE REWORK OPERATIONS IN DETAIL

- 4/22/85 MIRU, kill well, ND tree, NU BOP's.
- 4/23/85 Unseat packer and circ. hole clean to 8210'. Trip out, LD packer, PU cement retainer, trip in to 4000'.
- 4/24/85 Set retainer at 8115', run injection test, squeeze perfs 8142-52' & 8159-62' with 25 sxs Class A. TOOH, WOC.
- 4/25/85 Drill out squeeze. Clean out hole to 8299' (PBTD).
- 4/27/85 Spot acid. Perf 8141-44' (13 holes). TIH to 8095.
- 4-28-85
  - & Swab and flow test.
- 4/30/85

#### GEOLOGICAL FORMATION RECORD OF DEEPENING

FROM	то	FORMA	ATION (type, color	, hardness)	FROM	то	FORMA	TION (typs, color	, hardness)
					: .	-			
		SEE O	RIGINAL 721	n					
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	DAILY P	RODUCTION	TEST RECORD	)	DAILY INJ	ECTION TES	T RECORD I	F INJECTION W	ELL (OR BD
}		rels	Flowing Pres		1	Barrels		essure	Specific Grav
Date	Gas	Water	Tubing	Casing	Date	of Water	Beginning	Ending	of Water
4-30-85	3-400 MCF	25	1440 psi	2440 nsi	<u> </u>		· · · · · · · · · · · · · · · · · · ·		
	1101		1440 pst	2440 ps r					
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SIGNATURE (Well Owner or Authorized Representative)	ADDRESS (If different than well	owner)	DATE (Month, Day, Year)
Donald R. Hall	Same	·	May 3, 1985

NOTE: IF GAS WELL, RECORD FLOW TEST UNDER "DAILY PRODUCTION TEST RECORD"

#### STATE OF MICHIGAN **DEPARTMENT OF NATURAL RESOURCES**

GEOLOGICAL SURVEY DIVISION

•	
•	LEAVE BLANK
DEE	PENING PERMIT NUMBER
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PLICATION	
TO	

•		
	APR	0 <sub>5</sub> 1985
		1985

	V		. •						
PERMIT NUMBER CHANGE WELL STATUS					FIELD	IAME			
36110		(SUBMIT IN C	QUADRUPI	LICATE)			Herse	<b>y</b>	
NAME AND ADDRESS OF WELL OW	NER								
PPG Oil & Gas Co., Inc.	, 2258 Enterpr	ise Drive,	Mt. P	leasan	t, Mi	chigan 4	18858		
LEASE OR FARM NAME							WELLN	UMBER	
Thompson							3-36		
WELL LOCATION	SECTION				TC	WNSHIP		COU	VTY
NE' NW SE'	36	T. 17N		R.9W	h	lersey		010	eola
(	Deepen, Plug Back, Co.	wert to Injection	or Disposa	i Wall, Te	mporeril	y Abandon 4	etc.)		
APPROVAL REQUESTED TO Set	retainer or s	queeze to	reduce	water	prod	uction			
DATE DRILLING COMPLETED	DATE LAST PRODU	CED	LAST PI	RODUCTI	ON (An	t/day)			
10-31-82	2-20-85			0 0	IL,	25	WTR.,	350	M.C.F. GAS
WORK TO BE DONE BY	· · · · · · · · · · · · · · · · · · ·						WILLS	TART (DA	TE)
Lease Management, Dowel	1						4-8-8	35	

	CASING A	ND CEMENTIN	G RECORD
SIZE CASING	DEPTH SET	NO. SACKS CEMENT	PERFORATIONS
13-5/8	919	900	
9-5/8	5500	300	
5-1/2	8366	1200	8159-62, 8142-52
2-7/8	7635		
	1		

FORMATION RECORD

(Formation and depth, Oif, Gas & Wtr. shows, etc.)

See attached sheet

DESCRIBE PROPOSED WORK IN DETAIL:

- Run production log to determine where water is entering wellbore.
- 2. If water is coming from 8159-62, set cement retainer at 8155. Swab perfs at 8142-52 to kick off - test and return to production.
- If water is coming from 8142-52, set retainer at 8100. Squeeze with 75 sxs. WOC.
- Drill out to 8175'.
- Reperforate and stimulate with 500 gallons 28%. Perfs will be determined after logging.
- Swab, test, return to production.

The proposed work as outlined above and approved by the Supervisor or his Authorized Representative with the provisions of Act 61, P.A. 1939 and the rules and regulations issued and adopted thereunder.	a will be executed in accordance
SIGNATURE (Wen Owner or Authorized Representative)	DATE
/Donald R. Hall, Senior Petroleum Engineer	3-28-85
Michael 1. WHY CAPILLAC	9/1/85
NOTE: WELL REWORK RECORD Form R-7212, is to be filled in DUPLICATE within 30 days after completion	B 7237 3/73

STATE OF MICHIGAN	TYPE OR PRINT
PEQUEST FOR TRANSFER OF A PERMIT	PERMIT NO WELL TYPE
SUBMIT 4 COPIES TO: Department of Natural Resources	36110 Gas
Geological Survey Division	FIELD NAME
Box 30028 Lansing, Michigan 48909	Hersey-Clinton WELL NAME AND NUMBER
Filing for change of ownership of well is required in accordance with Act	Thompson 3-36
61, P.A. 1939 and Act 35 P.A. 1969, as amended, and Administrative	WELL LOCATION
Rules promulgated thereunder.	NE 1/4 NW 1/4 SE 1/4 SECTION 36 T 17N R 9W
	TOWNSHIP COUNTY
TRANSFER OF A PERMIT FROM:	Hersey Osceola
NAME(S) OF SELLING OWNER(S) PPG 01 & Gas Co., Inc.	·
ADDRESS Number and Street — City or Town — State — Zip Code — Telephone	
One Jackson Square, Suite 600, Jackson, M1 492	201 (517) 782-8145
All operating rights are discharged by:	
Owner(s) Representative(s)	Signature(s) Date(s)
PPG 0il & Gas Co., Inc., Mr. Donald R. Hall	Dune RC 12/14/87
ELIGIBILITY FOR PERMITS IS CONDITIONED UPON COMPLIANCE WITH	THE STATUTES, RULES AND ORDERS OF THE DEPARTMENT OF
NATURAL RESOURCES. PERMITS WILL NOT BE GRANTED TO PERSO	NS NOT IN COMPLIANCE.
NON-SUBMISSION AND/OR FALSIFICATION OF THIS INFORI	MATION MAY RESULT IN FINES AND/OR IMPRISONMENT.
TRANSFER OF	A PERMIT TO:
NAME(S) OF ACQUIRING OWNER(S)	
Marathon Oil Company	
ADDRESS Number and Street City or Town State Zir Code in Telephone	2001 (517) 700 0145
One Jackson Square, Suite 600, Jackson, MI 49 (We) (I) have acquired the well under this permit and assume full response	
law, regulations and orders.	bility for the binning, operation, and abandoninent in comornity with the
lav, ragonisis site orders.	
SURETY BOND: SINGLE WELL ATTACHED BONDING	CO. SAFECO Insurance Company of America
🕅 BLANKET 🖔 ON FILE BOND N	UMBER 5194219
All and the state of the state	
All operating rights and responsibilities are assumed by  Owner(s) Representative(s)	Signature(s) Date(s)
Owner(s) (representative(s)	One (a)
Marathon Oil Company, Mr. David W. Hoopman	W. W. Hoopman 12/16/87
FOR DEPARTMENT OF NATUR	AL RESOURCES USE ONLY
	DISTRIBUTION BY ONR
	Lansing  Acquiring Owner
	Selling Owner
APPROVED Signature	Date Date

STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES		1 A1251	116	
GEOLOGICAL SURVEY DIVISION BOX 30028		PERMIT NO.	TYPE OF WE	ü.
EANSING, MICHIGAMA8909		36110 NAME AND ADDRESS OF WELL OWNER	Gas APPROVAL M	AAILOO
REQUIRED BY AUTHORITY OF:  ACT 61. P.A. 1939. AS AMENDED ACT 315. P.A. 1939  APPLICATION TO (Submit 4 copies):	Abatterinen	Marathon Oil Compa		$\mathcal{O}_{\mathcal{O}}$
ACT 61. P.A. 1939. AS AMENDED ACT 315. P.A. 7969	AS MIENDED	One Jackson Square		00/ 101/
APPLICATION TO (Submit 4 copies):	9 <sub>00</sub>	Jackson, MI 49201		X. /Y/200
APPLICATION TO (Submit 4 copies): 8 18	NDON NDON			
NON-SUBMISSION AND/OR FALSIFICATION OF THIS INFORMATION OF AND/OR IMPRISONMENT.	RESULT IN FINES			
CHANGE OF WELL STATUS REQUESTED FOR:	" Unit	FIELD/FACILITY NAME Hersey		
PLUG BACK X EXTEND PLUGGING (T.A.)	PERFORATE	WELL NAME		WELL NO.
CONVERT TO INJECTION OR DISPOSAL WELL	OTHER	Thompson		3-36
☐ ACIDIZE (315 ONLY) ☐ FRACTURE (315 (	ONLY)	NE 1/4 of NW 1/4 of SE	¼ Section	36 T 17N R 9W
LAST PRODUCTION / INJECTION AND TYPE OF FLUID		TOWNSHIP	COUNTY	
(Amount per day & injection pressure)  21 MCF/D 42 BWPD		Hersey	0sceo1	RODUCED/UTILIZED
21 110170 42 041 0		10/31/82	May 19	
WORK TO BE DONE BY: APPROVAL MAILED			STARTING DA	NTE
NA	ASING AND CE	MENTING RECORD	<u> </u>	
HOLE. DIA. CASING DIA. & WT./FT. DEPTHS SET		MENT QUANTITY, TYPE, ADDITIVES	CMT.	TOP PERFORATIONS
17-1/2 13-3/8 48# 919		iz, 200 Class A	CIY	
12-1/4 9-5/8 43.5 5,500 8-1/2 5-1/2 17# 8,366	300 Specia	mix, 150 Special II	4,4	
FORMATION RECORD (Formation and depth, oil, gas and water shows, e See Attached.	etic.):			
Temporarily abandon well, secure well equipment.	lhead with	chains and lock. Depre	ssurize s	surface
DNR ADDITIONAL REQUIREMENTS:			<del></del>	
Permission given to temporarily aband				
NAME/SIGNATURE (Authorized Representative)  Donald R. Hall, Production Superinte	ndent 💯	R. Hall	07	7/07/88
APPROVED BY DNF OWN MON Cle	/	OFFICE Cadillac	0/	12/31/88
NOTE: THREE COPIES OF WELL PLUGGING OR REWORK (PR 7200-8) AL	RE TO BE FILED W	VITHIN 30 DAYS OF COMPLETION.		PR 7200

(		, "				
		MICHIGAN	£	F-1:5		
•	GEOLOGICAL S	SURVEY DIVISION	•	PERMIT NO.	TYPE OF WELL	
		30028 CHIGAN 48909		36110	Gas	
0.000	L. ANDUANCE. AP			NAME AND ADDRESS OF WELL OWNER	APPROVAL MAILED	
	Y AUTHORITY OF:			Marathon Oil Compar	١٧	Jin .
£X 61.	P.A. 1939, AS AMENDED	☐ ACT 315, P.A.	1969, AS AMENDED	One Jackson Square		JUL 1 1 1988
A J.ICA	TION TO (Submit 4	copies):	•	Jackson, MI 49201	, 300. 000	-508
	WELL STATUS	-				
NON-SUBMISSH AND/OR IMPRI	ON ANDIOR FALSIFICATION O SOMMENT.	F THIS INFORMATION N	MAY RESULT IN FINES	FIELD/FACILITY NAME		
CHANGE OF W	VELL STATUS REQUESTED FI	DA:		Hersey		
[ _	ACK X EXTEND PLU		☐ PERFORATE	WELL NAME	WEL	L NO.
	T TO INJECTION OR	• •		Thompson	,	3-36
		<del></del>		WELL LOCATION	<del></del>	
ACIDIZE	(315 ONLY)	FRACTURE (31	5 ONLY)		4 Section 36	T 17N R 9W
	TION / INJECTION AND TYPE	OF FLUID		TOWNSHIP	COUNTY	
	ly & injection pressure)			Hersey	Osceola	
21 MC	CF/D 42 BWPD			DATE DRILLING COMPLETED 10/31/82	May 1987	ED/UTILIZEO
WORK TO BE	DONE BY: APPROVAL M	AL FO		10/01/01	STARTING DATE	
TO BE	TOTAL MILES	NA			JUNEAU DATE	
			CASING AND CE	MENTING RECORD		
HOLE DIA	CASING DIA. & WT./FT.	DEPTHS SET		ENT QUANTITY, TYPE, ADDITIVES	CMT. TOP	PERFORATIONS
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12-1/4	9-5/8 43.5	5,500	300 Specia	T	4,625	·
8-1/2	5-1/2 17#	8,366	1,050 Poz	mix, 150 Special II	4,435	8141-44
ETAIL PROPOSI	ED PAOCEDURES:					<del></del>
Temporal equipmen Extensi	rily abandon wel nt. on granted to J	une 13, 1989,	, for decisio	chains and lock. Depression as to plug or requested that is increasing in	to hold as T	.A. for
mis		···		For reservoir study until	DATE	00
uonald R	(Authorized Representative)	ion Superint	endent $\mathcal{L}$	/1.//	07/07/1	58 
PROVED BY ON	John	Med ma	les	OFFICE Cadillac	DATE 12	2/31/88
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•	STATE OF DEPARTMENT OF NA GEOLOGICAL SU BOX ( LANSING, MIC	PERMIT NO. 36110			PE OF WELL			
.,	AUTHORITY OF: A. 1939, AS AMENDED	969, AS AMENDED	One Jack	oil Comp Ison Squar	any	PPROVAL MAILED		
APPLICATI	ON TO (Submit 4	copies):		Suite 60   Jackson,	10 MI 4920	)1		
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NON-SUBMISSION	N AND/OR FALSIFICATION OF DIMENT.	THIS INFORMATION MA	AY RESULT IN FINES	FIELD/FACILITY NA	AME			
CHANGE OF WE	LL STATUS REQUESTED FO	R:		Hersey	1187			
7 —	CK X EXTEND PLU		PERFORATE	WELL NAME			1	. NO.
CONVERT	TO INJECTION OR	DISPOSAL WELL	OTHER	Thompson well Location	1			3-36
ACIDIZE	(315 ONLY)	FRACTURE (31	5 ONLY)	1 .	NW 1/4 of	SE 14 5	Section 36	T 17N R 9W
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	on is given to er disposal we	•	abandon well	l till June	2 13, 199	l for po	ossible re	completion
NAME/SIGNATUR	E (Authorized Representative)						DATE	
APPROVED BY	WWW DONG	عو	GFFICE		APPROVAL DATE	89	TERMINA	TION DATE

STATE OF MICHIGAN
DEPARTMENT OF NATURAL RESOURCES
GEOLOGICAL SURVEY DIVISION PERMIT NO. TYPE OF WELL BOX 30028 36110 Gas LANSING, MICHIGAN 48909 NAME AND ADDRESS OF WELL OWNER [ APPROVAL MAILED REQUIRED BY AUTHORITY OF: Marathon Oil Company 🔯 ACT 61, P.A. 1939, AS AMENDEO 🔝 ACT 315, P.A. 1969, AS AMENDED 1231 E. Mosherville Road APPLICATION TO (Submit 4 copies): Jonesville, MI 49250 OCT 0.1 1993 X CHANGE WELL STATUS X PLUG AND ABANDON NON-SUBMISSION AND/OR FALSIFICATION OF AND/OR IMPRISONMENT. THIS INFORMATION MAY RESULT IN FINES FIELD/FACILITY NAME Hersey CHANGE OF WELL STATUS REQUESTED FOR: PLUG BACK DEXTEND PLUGGING (T.A.) PERFORATE WELL NAME WELL NO CONVERT TO INJECTION OR DISPOSAL WELL [] OTHER Thompson 3-36 WELL LOCATION FRACTURE (315 ONLY) ACIDIZE (315 ONLY) 4 Section36 NE . 1/4 of R SW T 17N 1/4 of LAST PRODUCTION/INJECTION AND TYPE OF FLUID TOWNSHIP COUNTY Kersey Osceola (Amount per day & injection pressure) DATE DRILLING COMPLETED DATE LAST PRODUCED/UTILIZED 10/31/82 5/87 STARTING DATE WORK TO BE DONE BY: [ APPROVAL MAILED ASAP N/A CASING AND CEMENTING RECORD CMT TOP HOLE. DIA CEMENT QUANTITY, TYPE, ADDITIVES PERFORATIONS CASING DIA. & WY./FT. DEPTHS SET 17-1/2" 13 3/8", 48# 9191 700 SX Pozmix, 200 SX Class A Circ. 12-1/4" 9-5/8", 43.5# <u> 5500'</u> 300 SX Special 46251 8-1/2" 5 1/2", 17# 1 6958 1050 SX Pozmix, 150 SX Special C1.H 42001 8141-441 FORMATION RECORD (Formation and depth, oil, gas and water shows, etc.): SEE ATTACHMENT A NOV 0 8 1993 Permits & Bonding unit DETAIL PROPOSED PROCEDURES: SEE ATTACHMENT B DNR ADDITIONAL REQUIREMENTS. Notify DNR 616-775-9727 24 hours prior to start up. NAME/SIGNATURE (Authorized Representative) 9/27 N.R. Daniels, Jr. Michigan Production Superintendent APPROVED BY DNR OFFICE TERMINATION DATE

DNR	Michi	gan Department of N Geological Survey			Permit	t Number	Well Name	& Number		
RECORD OF	WELL PLUG	GING OR REW	ORK	Тур	e of Well		d Name			
PA 1969, as ame	ended. Non-subm	ACT 61, PA 1939, a nission and / or falsifi I / or imprisonment.	s amended or ACT 3 cation of this	115, 1/4 — N Dat	E NW SI e Plugging	ection, Tow	Hers vnship, Rang -117N-R9U Started	e, County	ging / Rawork C	Completed
Name and Addre:	ss of Well OWNE	ir	·····		1-08-93 ne and Ad	Idress of Co	ontractor/Ser	vice Compan		
Marathon Oil ( 1231 E. Moshe Jonesville, M	rville Road			(atta	ach additio eckman S ichigan t	onal sheets ervices, Wireline	as needed) Inc. 4400 P 0 Box 34	N. Clare A	ve. Harrison, ant, M1 4880 nt, M1 48804	)4
PLUGGING [		Act 61 Oil & Gas	Act 315 Mineral We	lls Stat	rus.	Michael	J. Moss		Date 130000	ange of W
☐ Tools, tubing,	etc. left in hole -	describe in Daily Chi						hs in Daily Ch	ronology.	7:
<u>~</u>			PLUGGING Only	(HOLE	CONDITIO	ONS AFTE				
Casing Size	Where Set	Amount Casing Pulled	Depth Casing Cut/Perfed: Windows Milled	Depth Bottom	Тор	Type of Br	PLU ridge or Plug	Cement Plu	gs: Cement and additives	Tagged Top? Y/N
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,						DAILY INJECTION TEST RECORD [ ] Injection Well [ ] Brine Disposal				
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# DAILY REPORT CENTRAL PRODUCTION REGION COMPANY OPERATED November 11, 1993

#### WORKOVER/RECOMPLETION

Hersey Field Thompson #3-36

Osceola County, MI

AFE NO: 98832

AFE AMOUNT: \$48,300

OPERATOR: Marathon Oil

KB

RIG: Beckman #4

MOC/WI: 77%3

MIRU: 11-08-93

CSG: 13 3/8" 45# @ 919'

9 5/8" 435# @ 5500' 5 1/2" 17# @ 8366' ELEV: GL

TD: PBTD:

COST TO DATE: \$1,123

DAY: 1

PRESENT OPERATION: Plug and Abandon

REMARKS: 11/08/93: MI and spot 500 bbl Frac tank, mud pump, and open top tank. Hauled in 350 bbls 10.2 SAB. Rig had flat tire on the way to the location. Waiting on tire repair in a.m.

COST TO DATE: \$5,697

DAY: 2

PRESENT OPERATION: Plug and Abandon

REMARKS: 11/09/93: MIRU Beckman Rig #4. Used J&B cat to spot rig. Csg 1100 psi and tbg 0 psi. RU JO well service. Ran 2.33" OD gauge ring range to 7968'. ROH. RIH w/DD Bridge plug and set @ 300'. ROH. ND tree (All bolts very rusty). NU BOP's. RU Double check. Tested BOP's to 500 psi and 5000 psi. Tested ok. RD Double check. RIH and retrieved DD Bridge plug. ROH. RD JO well service. Secured well for night.

COST TO DATE: \$10,137

DAY: 3

PRESENT OPERATION: Plug and Abandon

REMARKS: 11/10/93: Tbg 0 psi and csg 0 psi. Circulated hole w/10.2 SAB. TOH w/260 jts 2 7/8" tbg (8067'). RU Michigan Wireline. RIH w/gauger ring and junk basket to 8150' GLM. ROH. RIH w/Baker K-1 5 1/2" retainer and set @ 8100'. ROH. RD Michigan Wireline. TIH w/Baker stinger tool and 10 stands 2 7/8" tbg. SWIFN.

# DAILY REPORT CENTRAL PRODUCTION REGION COMPANY OPERATED November 15, 1993

#### WORKOVER/RECOMPLETION

Hersey Field Thompson #3-36

Osceola County, MI

AFE NO: 98832

AFE AMOUNT: \$48,300

CSG: 13 3/8" 45# @ 919'

9 5/8" 435# @ 5500'

5 1/2" 17# @ 8366'

OPERATOR: Marathon Oil

RIG: Beckman #4

MOC/WI: 77%3 MIRU: 11-08-93

ELEV: GL KB

TD: PBTD:

COST TO DATE: \$17,917

DAY: 4

PRESENT OPERATION: Plug and Abandon

REMARKS: 11/11/93: 0 psi on well. Finished TIH w/2 7/8" tbg. Stung into retainer @ 8100'. RU Halliburton services. Pumped 15 bbls SAB @ 3 bbl/min, 2000 psi. Pulled out of retainer and spotted cement to end of tbg. Stung back into retainer. Pumped 25 sks Class "H" cmt into formation @ 2 bbl/min, 1800 psi. Pulled out of retainer and spotted 25 sks Class "H" cmt. Flushed tbg with 45 bbls SAB. TOH with 2 7/8" tbg to 7100'. Spotted 25 sks of Class "H" cmt (7100-6900'). Flushed w/40 bbls SAB. TOH with 2 7/8" tbg to 5600'. Spotted 25 sks Class "A" cmt (5400-5600'). Flushed w/30 bbls SAB. TOH w/2 7/8" tbg to 4500'. Reverse circulated hole clean. RD Halliburton. TOH w/2 7/8" tbg and stinger. SWIFN.

COST TO DATE: \$24,192

DAY: 5

PRESENT OPERATION: Plug and Abandon

REMARKS: 11/13/93: 0 psi on well. ND BOP's. Ran 5 1/2" spear, pulled 140,000 w/rig. Unable to move slips on 5 1/2". Cut 5 1/2" off 2' below slips with machine cutting. ND 5 1/2" csg spool. NU spacer spool. NU 10,000 psi BOP's. Ran spear in 5 1/2". Pulled stretch on 5 1/2" 70,000 to 95,000, had 11" stretch. Pulled 70,000 to 100,000,had 12" stretch. RU Michigan Wireline. RIH and cut 5 1/2" at 4150'. Worked csg pulling 110,000 lbs csg free. ROH and RD Michigan Wireline. TOH w/5 1/2" csg checking each jt for NORM. 50 jts (2083.99'). SWIFN.

COST TO DATE: \$27,092

DAY: 6

PRESENT OPERATION: Plug and Abandon

REMARKS: 11/14/93: 0 psi on well. TOH w/20 jts 5 1/2" 17# csg. Bearing went out of rig gear box right angle drive. SD for repairs. Loaded hole w/10.2 SAB and secured well. Total 5 1/2" csg pulled 70 jts (2908.47). (About 1240' left to pull). Spotted csg jacks. Spotted 10,000 BOP's for 9 5/8". Secured location until rig repairs complete. Should be done on 11-16-93.

# DAILY REPORT CENTRAL PRODUCTION REGION COMPANY OPERATED November 24, 1993

#### WORKOVER/RECOMPLETION

Hersey Field

Thompson #3-36 Osceola County, MI

AFE NO: 98832

AFE AMOUNT: \$48,300

CSG: 13 3/8" 45# @ 919'

9 5/8" 435# @ 5500'

5 1/2" 17# @ 8366'

OPERATOR: Marathon Oil

RIG: Beckman #4 MOC/WI: 77.3%

MIRU: 11-08-93

ELEV:

 ${ t GL}$ 

 $\mathbf{K}\mathbf{B}$ 

TD: PBTD:

COST TO DATE: \$32,997

DAY: 7

PRESENT OPERATION: Plug and Abandon

REMARKS: 11/22/93: 0 psi on well. Finished pulling 5 1/2" 17# csg (27 jts). Total 5 1/2" csg pulled 4042.72. Checked for NORM. All okay. ND BOP's and NU csg jacks. RU Michigan Wireline. RIH w/8 1/4" OD cutter. Set down at 2688'. Could not get beyond 2688'. ROH. NU BOP's. Secured well for night. Ordered out 8 1/2" OD csg scrapper for a.m.

COST TO DATE: \$38,432

DAY: 8

PRESENT OPERATION: Plug and Abandon

REMARKS: 11/23/93: 0 psi on well. TIH w/8 1/2" bit and 8 1/2" csg scraper to 4149'. Circulated hole. TOH w/2 7/8" tbg, scraper and bit. RU csg jacks and 9 5/8" spear. RU Michigan Wireline. RIH w/8 1/4" OD cutter. Pulled 220,000# w/jacks. Pipe free @ 4000'. Cut csg @ 4003'. Worked csg and it seems to be cut. ROH w/wireline. RD Michigan Wireline. 0 psi on well. NU jacks and pulled 30' 9 5/8" csg @ 115,000# w/jacks. Pulled slips and bowl out of wellhead. Set 9 5/8" csg back down. ND jacks and NU BOP's. Secured well for night.

# DAILY REPORT CENTRAL PRODUCTION REGION COMPANY OPERATED November 30, 1993

#### WORKOVER/RECOMPLETION

Hersey Field

Thompson #3-36 Osceola County, MI

AFE NO: 98832

AFE AMOUNT: \$48,300

CSG: 13 3/8" 45# @ 919'

9 5/8" 435# @ 5500'

5 1/2" 17# @ 8366'

OPERATOR: Marathon Oil

RIG: Beckman #4 MOC/WI: 77.3% MIRU: 11-08-93

ELEV: GL KB

TD: PBTD:

COST TO DATE: \$39,692

DAY: 9

PRESENT OPERATION: Plug and Abandon

REMARKS: 11/24/93: 0 psi on well. Rig crew stringing up six lines on rig (7 hrs). Pulled on 9 5/8" csg, pulling 230,000# w/rig. Pipe moved up hole 20'. Worked 9 5/8" pipe pulling @ 220,000#. Trouble with rig air supply to clutch. Rig only able to pull 180,000# to 200,000#. Clutch slipping. Stacked 9 5/8" csg out on bottom. Secured well. Rig crew to work on rig on 11-26-93. No charge for rig today. Will start work again on 11-29-93.

# DAILY REPORT CENTRAL PRODUCTION REGION COMPANY OPERATED December 02, 1993

#### WORKOVER/RECOMPLETION

Hersey Field

Thompson #3-36 Osceola County, MI

AFE NO: 98832

AFE AMOUNT: \$48,300

CSG: 13 3/8" 45# @ 919'

9 5/8" 435# @ 5500'

5 1/2" 17# @ 8366'

OPERATOR: Marathon Oil

KB

RIG: Beckman #4 MOC/WI: 77.3%

MIRU: 11-08-93

ELEV: GL

TD: PBTD:

COST TO DATE: \$43,702

DAY: 10

PRESENT OPERATION: Plug and Abandon

REMARKS: 11/29/93: 0 psi on well. RU casing jacks. Started jacking 9 5/8" 0310,000#. Jacks 8 jts out of hole. Pulled 1 jt w/rig 0 200,000#. Unable to break connection on jt #10. Worked 1 1/2 hrs. Called out welder to head collar in am. Secured well for night. Loaded hole w/10.2 brine. Took 32 bbls. Total of 9 jts 9 5/8" csg pulled today.

COST TO DATE: \$48,402

DAY: 11

PRESENT OPERATION: Plug and Abandon

REMARKS: 11/30/93: 0 psi on well. Loaded hole w/10.2 SAB. Took 25 bbls. Attempted to pull 9 5/8" csg w/rig. Pulled 230,000# with no luck. Jacked out 1 jt 9 5/8" csg pulling 300,000#. Pulled 5 jts with rig @ 180,000#. RD csg jacks. Finished pulling 9 5/8" csg. Loaded hole w/10.2 SAB after each jt. Checked all pipe for NORM. All okay. Total pipe pulled today 94 jts. Total pipe pulled 103 jts and 2 stubs (3997.45). Shut well in for night.

COST TO DATE: \$51,962

DAY: 12

PRESENT OPERATION: Plug and Abandon

REMARKS: 12/01/93: 0 psi on well. Loaded hole w/10.2 SAB. Took 22 bbls. TIH with 2 7/8" tbg (open ended). Tbg stopped @1266'. Worked tbg, but could not get through @1266'. RU mud pump and circulated hole w/10.2 bbls brine. Still unable to get through @1266'. RU Halliburton. Circulated hole w/50 Vis Gel (wt 10.1). Dropped through @ 1266'. Ran 3 jts tbg and set down again @1357'. Soft tbg drifting down slow. TOH w/2 7/8" tbg. Bottom of tbg @900'. Secured well for night.

# DAILY REPORT CENTRAL PRODUCTION REGION COMPANY OPERATED December 06, 1993

WORKOVER/RECOMPLETION

Hersey Field

Thompson #3-36 Osceola County, MI

AFE NO: 98832

AFE AMOUNT: \$48,300

CSG: 13 3/8" 45# @ 919' 9 5/8" 435# @ 5500'

5 1/2" 17# @ 8366'

OPERATOR: Marathon Oil

KB

RIG: Beckman #4 MOC/WI: 77.3% MIRU: 11-08-93

ELEV: GL

TD: PBTD:

COST TO DATE: \$59,404

DAY: 13

PRESENT OPERATION: Plug and Abandon

Remarks: 12/02/93: Well 0 psi. TIH w/2 7/8" tbg and tagged at 1086'(180' higher than yesterday). RU Halliburton. circulated hole clean. Getting back chunks of shale. Circulated down 30', pulled up hole, and could not get back down. plugged. RD Halliburton. TOH w/2 7/8" tbg. RU Kal-Fish drill mobile. Started mixing salt water gel to 45 Vis. TIH w/7 5/8" bit and 2 7/8" tbg and tagged at 1080'. Drilled down to 1115' again (10 min) and circuleted hole 30 minutes. Short trip again. Lost Reamed at 1110' - 1115' for one hour. Short trip 5' of hole. (No hole loss). Picked up jt w/swivel and drilled from 1115' to 1128' for 10 minutes. Drilled hard from 1128' to 1134'. Drilled down to 1143'. Circulated hole 30 minutes. Added mud and Short trip at 1115' - 1143' (lost 10' of hole). took Vis to 50. Drilled down from 1133' - 1143' in 35 minutes. Circulated hole for 30 minutes. Present conditions: pump rate 4 bbls/min, mud wt 10.3, 48 Vis, and pump pressure 450 psi. Bit RPM 100. RU Halliburton services and kicked pump rate up to 7 bbls/ min.

COST TO DATE: \$77,799

DAY: 14

PRESENT OPERATION: Plug and Abandon

Remarks: 12/03/93: Drilled at 1133' to 1143'. Kept losing last 10' of hole. Halliburton pumping at 7 bbls/min. Mud wt 10.2 and 48 Vis. 09:00 hrs called Mike Moss with the DNR. Okay to plug well from 1134' to surface. RD Kalfish and RD Halliburton. TOH w/2 7/8" tbg and 7 7/8" rock tooth bit. Layed down 60 jts tbg from derrick. TIH w/2 7/8" tbg open ended to 1100'. RU Halliburton. Tbg plugged. Pressure up to 1000 psi on tbg. Shook tbg, but could not unplug tbg. TOH w/2 7/8" tbg (last jt plugged). TIH w/2 7/8" tbg to 1091'. Circulated hole. Circulated down to 1122'. Mixed and pumped 170 sks Class "A" cmt. TOH w/2 7/8" tbg to 1028'. Mixed and pumped 305 sks Class "A" cmt 1028' to 600'. Pulled 2 7/8" tbg to 600'. Mixed and pumped 526 sks Class A"" cmt. Cemented to surface. RD Halliburton. ND BOP's and cut 13 3/8" off 5' below ground. Welded plate on top. SDFN.

#### DAILY REPORT CENTRAL PRODUCTION REGION COMPANY OPERATED December 06, 1993

WORKOVER/RECOMPLETION

Hersey Field OPERATOR: Marathon Oil

Thompson #3-36 RIG: Beckman #4 Osceola County, MI MOC/WI: 77.3% AFE NO: 98832 MIRU: 11-08-93

AFE AMOUNT: \$48,300

CSG: 13 3/8" 45# @ 919' ELEV: KB GL

9 5/8" 435# @ 5500' PBTD: TD: 5 1/2" 17# @ 8366'

COST TO DATE: \$81,399

DAY: 15

PRESENT OPERATION: Plug and Abandon REMARKS: 12/04/93: RD Beckman Rig #4. Dug up seller and filled hole w/sand. Hauled all equipment off location except for 500 bbl

Frac tank. Job complete.

#### THOMPSON 3-36 Section 36-T17N-R9W Osceola County, Michigan

#### P & A PROCEDURE

#### WELL DATA:

13-3/8" 48# csg @ 919' 9-5/8" 43.5# csg @ 5500' 5-1/2" 17# csg @ 8366' 2-7/8" 6.5# tbg @ 8095' Existing perfs @ 8141-44' Cement to surface TOC = 4625' TOC = 4200'

#### PROCEDURE:

- 1. Kill well with 10.2 ppg SAB (State Approved Brine). ND tree. NU BOP's.
- 2. TOH with 2-7/8" tubing.
- 3. RU wireline company. Run gauge ring and junk basket to 8100'.

Set cement retainer @ 8100'. TIH with tubing and string into cement retainer. Establish injection and pump 50 sx of Class "H" cement. Displace 25 sx into formation, pull out of cement retainer and spot 25 sx above retainer. TOH to 7100' and reverse circulate to clean tubing.

- 4. With tubing at 7100', spot a 25 sx Class "H" cement plug at 7100-6900' (Across top of A2 Carbonate @ 7041'). TOH to 5600' and reverse circulate to clean tubing.
- 5. With tubing at 5600', spot a 25 sx Class "A" cement plug at 5600-5400' (Across 9-5/8" csg shoe @ 5500'). TOH to 4500' and reverse circulate to clean tubing. TOH with tubing.
- 6. RU wireline company. Cut 5-1/2" casing at 4150'. TOH with 5-1/2" casing. (Monitor for NORM and follow casing handling guidelines if NORM is encountered.)
- 7. Cut 9-5/8" casing at 4125'. TOH with 9-5/8" casing. (Again, monitor for NORM and follow NORM guidelines.)
- 8. TIH with 2-7/8" tubing to top of 5-1/2" casing stub. Spot a 175 sx Class "A" cement plug at 4150-3900' (Across top of Dundee at 3948'). TOH to 3400' and reverse circulate to clean tubing. TIH to top of cement. Add Bentonite to SAB until funnel viscosity is 28-29. Circulate hole with mud. TOH to 3400'.
- 9. With tubing at 3400', spot a 150 sx Class "A" cement plug at 3400-3200' (Across top to Traverse at 3303'). TOH to 1650' and reverse circulate to clean tubing.

P & A Procedure Thompson 3-36 Page 2

- 10. With tubing at 1650', spot a 150 sx Class "A" cement plug at 1650-1450' (Across top os Stray at 1614'). TOH to 1020' and reverse circulate to clean tubing.
- 11. With tubing at 1020', spot a 150 sx Class "A" cement plug at 1020-820' (Across 13-3/8" csg shoe at 919'). TOH with 2-7/8" tubing.
- 12. Spot a 25 sx Class "A" cement plug at 30' surface. Cut casing off 4' below ground level. Weld marker plate over top of casing.

_	_	_ 4
	7.	Daulcon
C.	Α.	Paulson

P. E. Legg

NRD 9/27/93

N. R. Daniels, Jr.

£arm 10118

SUBJECT \_\_

## MARATHON OIL COMPANY ENGINEERING CHART

THOMPSON 3-36 (P:A)

SHEET NO. OF

IL COMPANY	CHE	
G CHART	FILE	

APPN	
0.475	9-22-93

	36-TITN-R9W	DECEOLA CO, MI 8	CARreson
	Peus Peus	48 0-30' 2000	772
	133/8" 48#@ 919' PLUG	#7 820- 1020 Tell	1336" 48 40
	PLUG *	6 1450-1650	
	Penc"	5 3200-3400	
	Toc=4200' PLUG	4150	19% core 4125 5% core 4125
	1 18 43.3 E 2500	Ru6 #2 6900-7100	95% 43.5 *C 5500
	278"6.5#@8095' exp 8141-44'	Puc 81 7900-8144'	PERF 8141-44'
Y/1 (1/2)	2° 17*08366'	TD=8366'	54 17 # 8366

BEFORE

AFTER

CAPACITIES	F+3/FT
13 % " 48 # CSG	. 8817
12/4" HOLE	. 8125
9% 43.5 # CSG	.4180
5%" 17 # CSG	.1305
2%" 6.5# 786	.0325

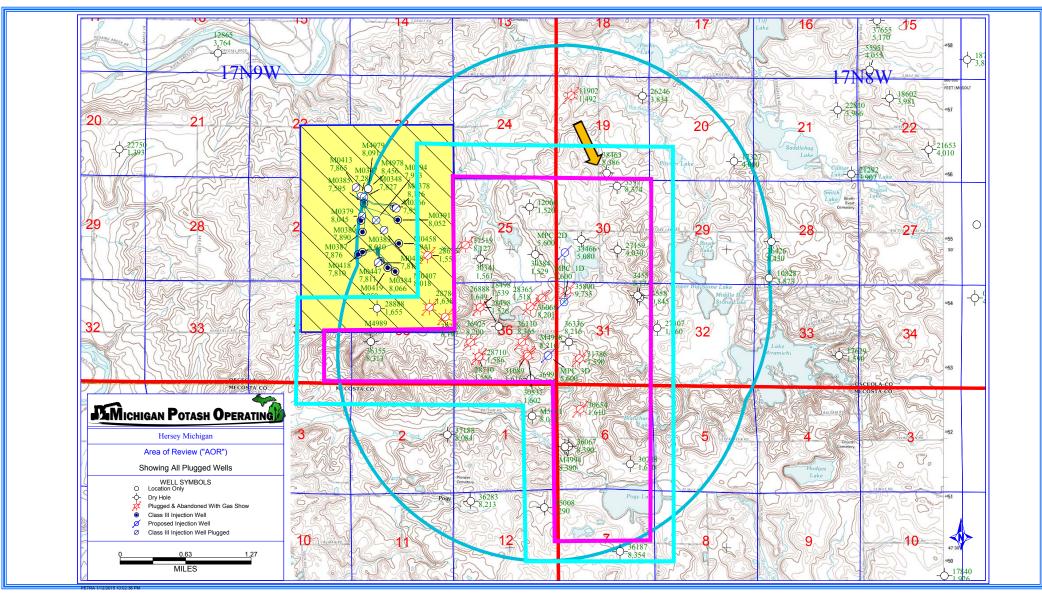


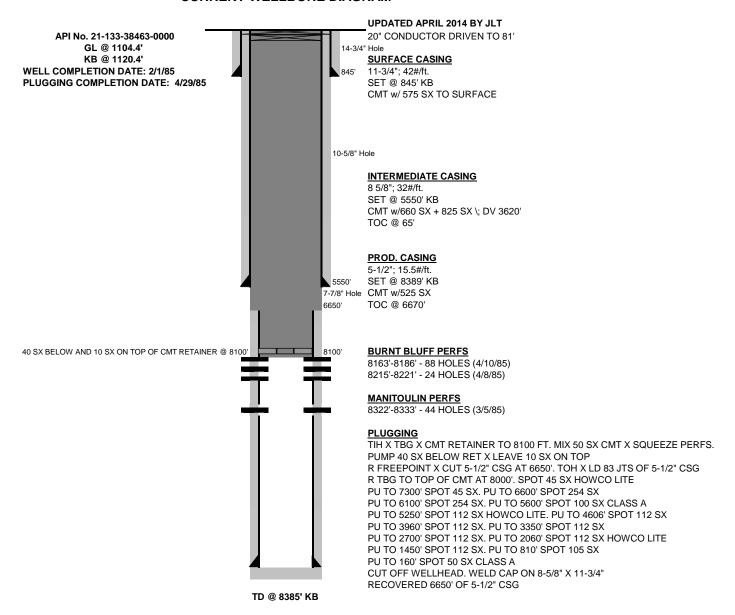
Figure B4. Map showing all plugged wells, shallow (that do not penetrate any confining horizon) or deep (that penetrate confining horzion) within the area of review. Total Depths are listed. There are several shallow Michigan Stray wells that do not penetrate the injection or confining horizon.



#### **VUKIN UNIT A 1-19**

SW SW SE Sec 19 T17N R8W OSCEOLA COUNTY, MI

#### **CURRENT WELLBORE DIAGRAM**



	<u>VUKIN UNIT A 1-19 WELL HISTORY</u>
DATE	DESCRIPTION
1/8/1985	SPUD.
3/5/1985	PERFORATED 44 HOLES: 8322'-8333'
4/8/1985	PERFORATED 24 HOLES: 8215'-8221'
4/10/1985	PERFORATED 88 HOLES: 8163'-8186'
2/1/1985	WELL COMPLETED. FORMATION AT TD CINCINNATIAN.
	20" CONDUCTOR SET AT 81'
	11-3/4" SET AT 845'; 575 SX
	8-5/8" SET AT 5550'; 660/825 SX
	5-1/2" SET AT 8389; 525 SX
4/22/1985	PLUGGING STARTED
.,,	TIH X TBG X CMT RETAINER TO 8100 FT
	MIX 50 SX CMT X SQUEEZE PERFS. PUMP 40 SX BELOW RET X LEAVE 10 SX ON TOP
	R FREEPOINT X CUT 5-1/2" CSG AT 6650'. TOH X LD 83 JTS OF 5-1/2" CSG
	R TBG TO TOP OF CMT AT 8000'. SPOT 45 SX HOWCO LITE
	PU TO 7300' SPOT 45 SX. PU TO 6600' SPOT 254 SX
	PU TO 6100' SPOT 254 SX. PU TO 5600' SPOT 100 SX CLASS A
	PU TO 5250' SPOT 112 SX HOWCO LITE. PU TO 4606' SPOT 112 SX
	PU TO 3960' SPOT 112 SX. PU TO 3350' SPOT 112 SX
	PU TO 2700' SPOT 112 SX. PU TO 2060' SPOT 112 SX HOWCO LITE
	PU TO 1450' SPOT 112 SX. PU TO 810' SPOT 105 SX
	PU TO 160' SPOT 50 SX CLASS A

CUT OFF WELLHEAD. WELD CAP ON 8-5/8" X 11-3/4"

RECOVERED 6650' OF 5-1/2" CSG

PLUGGING COMPLETED

4/29/1985

## STATE OF MIGHIGAN DEPARTMENT OF NATURAL RESOURCES LOG OF OIL, GAS, DISPOSAL OR STORAGE WELL (ACT 61) Submit in DUPLICATE Within 30 Days after Well Completion

	PERMIT NUMBER
i	38463
	DEEPENING PERMIT NUMBER

	31	יווזטט	I III DOPER	CAIE WII	1111) 3	o Days after	Well Comple	ugn							.,,,,			
NAME(S) & A	DDRE	SS C	F OWNER	(S) SHO	NN C	NPERMIT		NAME &	00	RESS OF	DRI	LLING	CONT	RACT	OR(S)			
Amoco	Prod	luct	tion Co	mpany				Indril										
P. O.			_					P. O. Box 668										
	Traverse City, MI 49685							Mt. P	le.	asant,	MI	488		FOTI	NALL	V 0.0	11   66	
1			A 1-19		V UN	r c RIMIT									NO		16651	,
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SIZE	w	HER	E SET	7	CEM	ENT	Ft. Pulled			NUMBER							OP	ËN
20"			81'	Dı	iv	en		DATE		HOLES		INTER	IVAL	PERFO	RATE	ן פ	YES	NO
11-3/4"				575	sx			3/5/8		44		8322	-833	3			X	
8-5/8''			0'			5 sx	·	4/8/8		24		8215					X	
5-1/2"		838	19'	$\frac{52}{1}$	25 :	SX	<del> </del>	4/10/	<u>85</u>	88	<u> </u>	8163	-818	<u> </u>			X	<b>-</b>
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							FORM	ATION	0	R GAS	DE	РТН	Sam- ples	Odor	Pits	Mud Line	Gas Log.	Fill Up
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·				_L	]		<u> </u>						<u> </u>	<u> </u>				
•	STIMU	LAT	ION BY A	CID OR F	RAC	CTURING		WAT	ER	FILL UP	F.U.	OR L	ost c	IRCUL	OITA.	V (L.C	) (X)	
DATE	Inter	val 7	Freated	Mai	terial	s and amoun	it used	FORM	1AT	ION	F.U.	L.C.	DEP	TH		AMO	JNT	
3/8/85	832	2-8	333_	2250	٤a]	28% NF	HCL	Dune	dee	3		X	38	36.3	Mini	ima 1	Amt	
4/10/85	816				~	L 28% NE									Est(			1
4/11/85	816	3-8	186	2000	gal	28% NE	HCL											
ļ												<b> </b>						
L												11						
N	MECHA	NIC	AL LOGS,	LIST EA	сн т	YPE RUN		DEPTH CO	RR	RECTION	DE	VIATIO	ON SU	YEY	PLC	GGE	BAC	K
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DMC.			DLL/N			8358-5	U		<u></u>	7000	<u></u>				L		<u></u>	
				Sonic Sonic	9.2	ეე4 <b>ნ−</b> წ <b>≗</b> ეეგე	17 Dipa RODUCTION	TEST DAT	345 A	o-7020								
OIL - Bbls/d	ay  G	RAV					AS - MCF/da			Bbls/dayli	+2\$	Grain	s/100 ·	cu. ft. l	В.Н.Я	. AND	DEP.	TH
DryHole					- 1						•						== *	
I AM RESPON	SIBLE	FOF	THIS RE	PORT. T	HE I	NFORMATI	ION IS COM	PLETE AN	D C	ORRECT.				l				
DATE 5/8/85			NAME AND	TITLE	(PRI	NT)	t Manage			BNATUR		*	1.	n B			<del></del>	
NOTICE REPO	BT CC	MPI		<del></del> -					TEN	A CEST IN	FOR	MATI	NO NO	REVE	RSF S	IDF	 R -	7210

## MAY 1-4-1985

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PERMIT TO PLUG AND ABANDON

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Amoco Prod. Co.

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Vukin Unit #1-19

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117N 8 8W

Evart

Osceola

SW SW SE, THE GENERAL (OIL Gas. Dry Hote, e.c.) dry hole

DATE COMPLETED drlg. 1/31/85

DATE PLUGGING WILL START 4/19/85

of gas

PLUGGING PERMIT REQUESTED BY & DATE Mike Kutas 4/17/85

LAST PRODUCTION PERI 8163-86; only water; "purf

MCFGPO

PLUGGING TO BE DONE BY

Pool / Ralliburton

PERMIT MALED TO

COPIES MAILED TO

			CASING AND CEMENTING RECORD		
HOLE DIA	CASING DIA & WT /FT	DEPTHS SET	CEMENT QUANTITY, TYPE, ADDITIVES	CMT TOP.	PERFORATIONS
	20"	. 80	DP		
10-5/8" 7-7/8"	11-3/4"	845'	650	circ	1
7178"	8-5/8"	5550'	660 lst stage; 825 2nd stage DV 3		5
	5-1/2"	8389'	525		8163-86: 8215

WELL FIRST PERFD 3/5/85

GEOLOGIC DATA; GAS AND OIL SHOWS; DRILLING AND COMPLETION DATA;

KB 1120.4 BOD 545

BI 5445

BN 7995

GN 8009

CL 8095

BRT BLF 8165

MAN 8302

TD 8389

Perfs: 8322-33 squeezed w/4 bbls. cmt. Rtnr. at 8289'.

PLUGGING REQUIREMENTS!

Progring requirements outlined are to be executed in accordance with the provisions of Act 61, P.A. 1939, as amended, and rules and orders adopted thersunder. Set 5-1/2" cmt. retainer at 8100'; squeeze 40 sx Cl H cmt. Spot 10 sx on top rtnr. Cut and pull 5-1/2" csg. at 6670'+. RIH w/tubg. to stub. Spot continuous cmt. plugs using lite poz., stub to just below surf. Spot 50 sx Cl A cmt. at surf. Cut csgs. 3' below grade. Weld on 1/2" steel plate. Fill cellar, rat & mouse holes solidly to surf.

PLUGGED ACCOMDING TO RE WHILES IN ECCENDENCE WITH /

SARED UNTIL A PLUGGING IS COMPLETED, CELLAR RAT HOLE AND PTTS FILLED, WELL SITE RESTORED AND RECORDS FILED. WATER WELLS MUST BE 188 OF ACT 294 P.A. 1985, "GROUND WATER QUALITY CONTROL". It is further made a requirement of this permit that the applicant give natice to the public 53, P.A. 1974 C.E. 460 701 to 460 718 and comply with each of the requirements of the act.

MEHORIZED BY (signature)

OFFICE Cadillac D#6

5/3/85

#### STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES **GEOLOGICAL SURVEY DIVISION**

## CADILLAC HAS COPY

WELL	PLUGG	ING RECORD

156.05	DEPARTM	STATE OF MICHIGAN MENT OF NATURAL RESOL LOGICAL SURVEY DIVISIO		CADIL	AC HAS COPY	MAY 1 6 1985
A Section of the sect	WEL	L PLUGGING RECO	RD		PERMIT NUMBER	
		TE Within 30 Days After Plug		pleted)	38463	
P.G.					FIELD NAME	
CAPP		100		11		
COMPLETE NAME(S)	AND ADDRES	S OF WELL WINE	5, O	11 4 69		
Amoco Produci	tion Comp	any, P. O. Box 13	350, Tra	verse City, M	I 49685	
COMPLETE LEASE OF	FARM NAM	E(S) /				WELL NUMBER
Vukin Unit A		/				1-19
WELL LOCATION	· · · · · · · · · · · · · · · · · · ·				TOWNSHIP	COUNTY
SW <sup>1/4</sup> SW	<sup>1</sup> / <sub>4</sub> SE	% SEC. 19	T. 17N	R. 8W	Evart	Osceola
TYPE OF WELL (OIL, G	as, Dry Hole,	etc.)	-	TOTAL DEPTH	FORMATION	
Dryhole				8386	Cincinnatian	
DATE PLUGGING STA	RTED	DATE PLUGGING COMPL	LETED		ATIVE(S) WHO ISSUED PE	ERMIT OR WITNESSED
4/22/85	,	4/29/85		PLUGGING	ot Available	
	****					
	CASING	RECORD		1	BRIDGES OR P	LUGS

	CASING RECORD									
SIZE CASING	DEPTH SET	AMOUNT RECOVERED	SHOT OR RIPPED							
20"	. 81'									
11-3/4"	845'									
8-5/8"	55501									
5-1/2"	83891	6650'								

BRIDGES OR PLUGS								
TYPE (Brush, Stone, Cement, Mechanical, etc.)	DEPTH PLACED	SACKS OF CEMENT AND ADDITIVES						
Numerous Cement Pl See details descri	-							

Were tools, tubing, casing, etc., lost or left in the hole before or during plugging?	YES	<b>∑</b> NO	If yes, give details:
		,	
Did a Service Company pump mud,	- Vcc	*/NO	If yes, give name and address:
spot cement, or set bridge plugs?	X YES	" NO	Halliburton - Kalkaska
Was the well plugged by a Company or			If yes, give name and address:
Contractor other than Owner or Operator?	X YES	□ NO	<u> Halliburton - Kalkaska</u>
Representatives of Owner, Operator, Company, or plugging:	Contractor v	vho witnessed	R. A. Abrahamson - Amoco
DESCRIBE IN DETAIL HOW WELL WAS PLUGGED	2 00 0100	The	
1. TIH X TBG X CMT RETAINED	DEBES D	IMP 40 SX	BELOW RET X LEAVE 10 SX ON TOP.
			X LD 83 JTS OF 5-1/2" CSG.
4. R TBG TO TOP OF CMT AT			
5. PU TO 7300 FT. SPOT 45	SX. PU TO	6600 Ft.	SPOT 254 SX.
6. PU TO 6100 FT. SPOT 254	SX. PU T	O 5600 FT.	SPOT 100 SX CLASS A.
7. PU TO 5250 FT. SPOT 112	SX HOWCO	LITE. PU	TO 4606 FT. SPOT 112 SX.
8. PH TO 3960 FT. SPOT 112	SX. PU T	O 3350 FT.	SPOT 112 SX.
9. PU TO 2700 FT, SPOT 112	SX. PU T	0 2060 FT	. SPOT 112 SX HOWCO LITE.
10PU_T0_1450_FTSPOT_112.	SX. PU T	<u>0 810'. SP</u>	OT 105 SX.
11. PH TO 160 FT. SPOT 50 S	X CLASS A	•	
12. CUT OFF WELLHEAD. WELD	CAP ON 8	-5/8" X 11	-3/4". (USE REVERSE SIDE IF NEEDED)

"I state that I am authorized by said Owner or Operator t			n and direc
tion, and that the facts stated herein are true, correct and  NAME AND TITLE (Typed or Printed)  J. L. Krupka, District Manager	complete to the best of my kn	COMPANY NAME AND ADDRESS  Amoco Production Company	
SIGNATURE . L. Krupka	DATE (Month, Day, Year) 5/8/85	P. O. Box 1350 Traverse City, MI 49685	
			R 7213

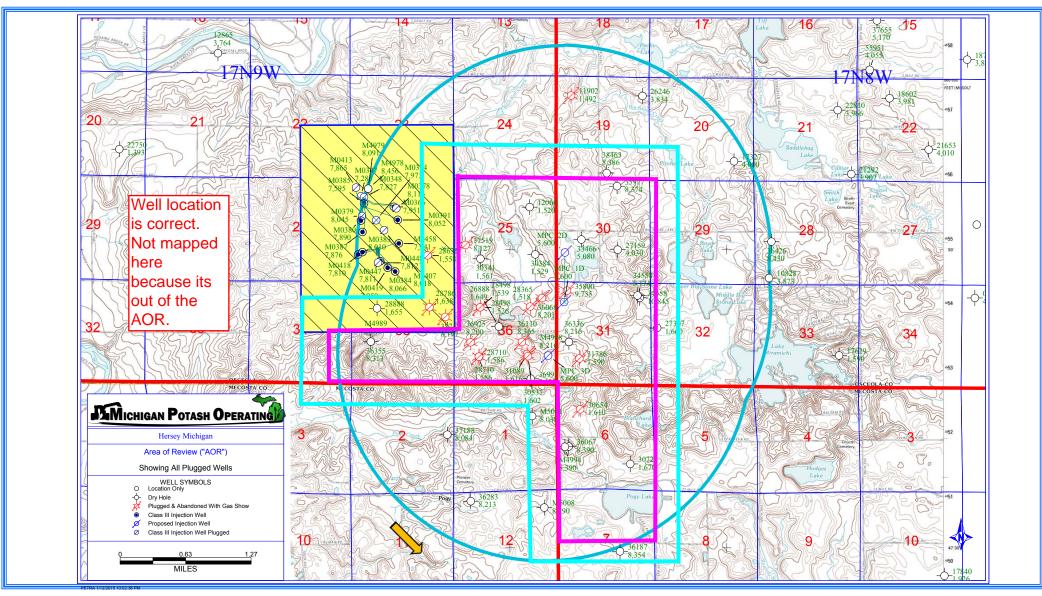
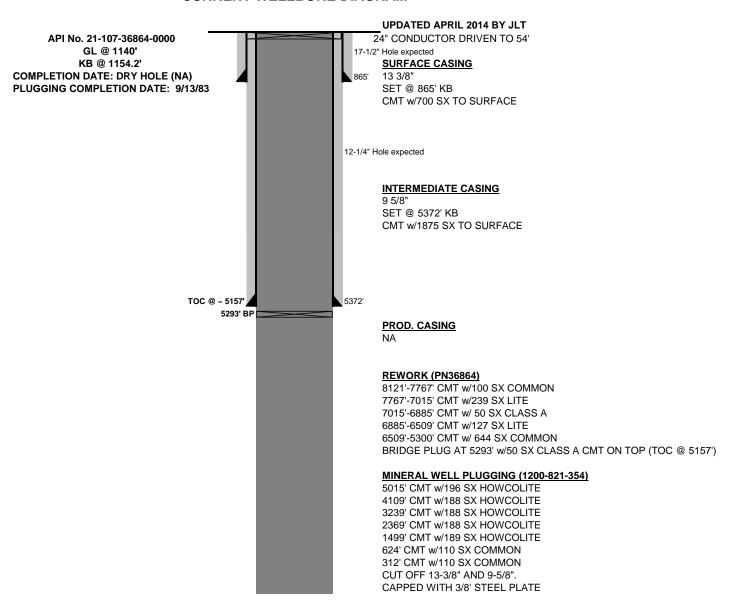


Figure B4. Map showing all plugged wells, shallow (that do not penetrate any confining horizon) or deep (that penetrate confining horzion) within the area of review. Total Depths are listed. There are several shallow Michigan Stray wells that do not penetrate the injection or confining horizon.

#### **WARD 1-11**

#### C NE NE Sec 11 T16N R9W MECOSTA COUNTY, MI

#### **CURRENT WELLBORE DIAGRAM**



TD @ 8121' KB

#### WARD 1-11 WELL HISTORY

	WARD 1-11 WELL HISTORY
<u>DATE</u>	DESCRIPTION
7/28/1983	SPUD.
9/11/1983	DRILLING COMPLETED. FORMATION COMPLETED IN CINCINNATIAN.
	24" CONDUCTOR SET AT 54' 13 3/8" SET AT 865': 700 SX
	9 5/8" SET AT 5372': 1875 SX
	9 3/0 SET AT 3372, 1073 SA
9/12/1983	REWORK START DATE (PN36864)
	RAN IN AND SET 110 SX FROM 8121' TO 7767'.
	PULLED UP AND SPOTTED 239 SX FROM 7767'-7015'.
	SPOTTED 50 SX FROM 7015'-6885'.
	PULLED UP AND SPOTTED 127 SX FROM 6885'-6509'
	PULLED UP AND SPOTTED 644 SX FROM 6509'-5300'.
	SET BRIDGE PLUG AT 5293' AND SPOTTED 50 SX ON TOP (TOC @ ~5157')
9/13/1983	REWORK COMPLETED (PN36864).
9/12/1983	PLUGGING START DATE (1200-821-354)
	RAN IN WITH 2-7/8" TUBING, TAGGED CEMENT AT 5018'.
	CIRCULATED OUT MUD, HALLIBURTON SPOTTED HOWCOLITE PLUGS:
	5015' CMT w/196 SX HOWCOLITE
	4109' CMT w/188 SX HOWCOLITE
	3239' CMT w/188 SX HOWCOLITE
	2369' CMT w/188 SX HOWCOLITE
	1499' CMT w/189 SX HOWCOLITE
	624' CMT w/110 SX COMMON
	312' CMT w/110 SX COMMON
	CUT OFF 13-3/8" AND 9-5/8".
	CAPPED WITH 3/8' STEEL PLATE

PLUGGING COMPLETED (1200-821-354)

9/13/1983

STATE OF MICHIGAN
DEPARTMENT OF NATURAL RESOURCES

GAS. DISPOSAL OR STORAGE WELL (ACT 61)

-	OIL,	uno,	DISP	OSAL	OR 3	IUNAGE	AAETT (W
Ŗ,	findu	in DUPL	ICATE	Within	30 Days	after Well	Completion

PERMIT NUMBER 36864

	;	Submi	it in DUPLIC	ATE Within	30 Days after	Welt Comple	elion	•	DE	EEPENING	PERM	IIT NU	MBER			
NAME(S) &	ADDR	ESS	OF OWNER	S) SHOWN	ON PERMIT		NAME &	ADDRESS	OF I	DRILLING	CONT	RACT	OR(S)			
PPG 011	. & (	as	Co., In	c.			Bi	gard Dr	11	ling Co	mpan	y				
1			e Drive MI 4885					15 S. M								
Mt. Ple							Mt_	. Pleas	ant	t, MI 4			NALL			
1		WEL	T MOWREH	SHOWN OF	NPERMII								NO		11.55	,
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NAME AND TITLE (PRINT) William & Booker

#### DEPARTMENT OF NATURAL RESOURCES Geological Survey Division

## REQUEST FOR CHANGE OF OWNERSHIP OF A PERMIT (Submit all copies)

Please Change:			Envloyat	
Permit No. 36864 Type Well 011 & G	Gas F	Field Name_	Hersey-Eva	rt
Owned by PPG 0il & Gas Co., Inc.				
Address 2258 Enterprise Drive, Mt. Pleasant, M (street) (town)	(state)	(zip)	(517) 7 (phone	
for Ward	No. 1-11 1	ocated in	the C 4 N	E 4 SE 4
section 11 , T. 16N, R. 9W , Grant	Township	, <u>Me</u>	costa	County,
to PPG Industries, Inc.  (acquiring owner-comp	Tata namas ni	2000		
All operating rights are discharged by (us) (me)	•	ease)		
(Owner) (Representative)	(Signa	tyane)	49	(Date)
PPG 0il & Gas Co., IncDonald D. Metzger	counce	We Mar	M	4-11-07
			<del></del>	
THE SUPERVISOR IS PROHIBITED BY STATUTE FROM ISSICOMPLIANCE WITH THE PROVISIONS OF THE ACT, THE VISOR OR THE NATURAL RESOURCES COMMISSION. ELIGIPLIANCE WITH SUCH RULES AND ORDERS IN A DILIGENT OIL FIELD PRACTICE.  (We) (I) have acquired the well under this permiting, operation, and abandonment in conformity with by the Supervisor of Wells. The bond(s) required	RULES, OR THIBILITY FOR PERSONNER AND I	E ORDERS OF ERMITS IS O N ACCORDANC full respon egulations	F EITHER THE CONDITIONED CE WITH ACCE isibility fo and orders	SUPER- ON COM- PTED or drill-
PPG Industries, Inc.  (acquiring owner-comp	lete names pl	ease)	<del> </del>	
Address 2258 Enterprise Drive, Mt. Pleasant, MI (street) (town)		(zip)	(517) 77 (phone	
All operating rights and responsibilities are ass	sumed by (us)	(me).		
(Owner) (Representative)	Signati	ure)		(Date)
PPG Industries, Inc Donald D. Metzger	buald	V. Ma	fife	4-17-84
THE DEPARTMENT OF NA	ATURAL RESOURG	White Yell Pink Company of the Prink Company of the	SE ONLY e, Lansing ow, Acquiri s, Selling O e, Field	wner

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#### STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES GEOLOGICAL SURVEY DIVISION

	EARSING	HAS COPT
	PERMIT NUMBER	
	36864	
	FIELD NAME	
1e	easant, MI 48858	
		WELL NUMBER
		1-11
	TOWNSHIP	COUNTY
		1

WELL PLUGGING RECORD

(Submit in TRIPLICA	TE Within 30 Days After Plugging is Cor	36864 FIELD NAME					
COMPLETE NAME(S) AND ADDRES	S OF WELL OWNER						
PPG Oil & Gas Co	., Inc., 2258 Enterprise	e Drive, Mt. Pl	leasant, MI 4885	58			
COMPLETE LEASE OR FARM NAM		WELL NUMBER					
Ward				1-11			
WELL LOCATION			TOWNSHIP	COUNTY			
C ¼ NE ¼	SE ¼ SEC. 11 T. 16	SN R. 9W	Grant	Mecosta			
TYPE OF WELL (Oil, Gas, Dry Hole,	etc.)	TOTAL DEPTH	FORMATION				
Dry Hole		8130	Cincinnatian				
DATE PLUGGING STARTED	DATE PLUGGING COMPLETED	DEPT, REPRESENTATIVE(S) WHO ISSUED PERMIT OR WITNESSED					
9-12-83	9-13-83	Todd					

	CASING RECORD							
SIZE CASING	DEPTH SET	AMOUNT RECOVERED	SHOT OR RIPPED					
24"	54'							
13 3/8"	8651							
9 5/8"	5372							

NAME AND TITLE (Typed or Printed)

William E. Booker, Geologist

Stilliam & Danker

BRIDGES OR PLUGS								
TYPE (8rush, Stone, Cement, Mechanical, etc.)	DEPTH PLACED	SACKS OF CEMENT AND ADDITIVES						
Cement	8121-7767	100 Sx Common						
Cement	7767-7015	239 Sx Lite						
Cement	7015-6885	50 Sx Class A						
Cement	6885-6509	127 Sx Lite						
Cement	6509-5300	644 Sx Common						
Bridge Plug	5293	50 Sx on Top						
	τ	v ≈ 5157						

Were tools, tubing, casing, etc., lost or left in the hole before or during plugging?	YES	XX NO	If yes, give details:
Did a Service Company pump mud, spot cement, or set bridge plugs?	XX YES	□ NO	If yes, give name and address:  Halliburton
Was the well plugged by a Company or Contractor other than Owner or Operator?	YES	XX NO	If yes, give name and address:
Representatives of Owner, Operator, Company, plugging: Chet Lowery	or Contractor v	who witnessed	
7015, pulled up and spot 6885 to 6509, pulled up 5293 and spotted 50 sx o	ted 50 sx and spotter on top.	from 7015 ed 644 sx	11ed up and spotted 239 sx from 7767 to -6885, pulled up and spotted 127 sx from from 6509 to 5300. Set bridge plug at
GEO COMMISSIONEL			IUSE REVERSE SIDE IF NEEDED)
007-1-5 <b>1993</b>			1013 000 Unit
Parama & Dunding Unit			IUSE REVERSESIDE IF NEEDED)

10-17-83

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CONTRO tion, and that the facts stated herein are true, correct and complete to the best of my knowledge." COMPANY NAME AND ADDRESS
STRICKLER GEOLOGICAL SERVICES, INC. 1425 S. Mission DATE (Month, Day, Year) Mt. Pleasant, MI 48858

#### OPERATORS USE

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Description of Detail (cont.) or Other Supplemental Date:		
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#### STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES GEOLOGICAL SURVEY DIVISION

#### MINERAL WELL PLUGGING RECORD

	File in DUPLICA	TE Within 30 Days	After Plugging is	Complete	rd	·	DATE	.1-33		
	•					Ì	2-1-88		C.E.	
OWNERORO	PERATOR						2-1-00	~		
	G Industrie	s, Inc.						ø	· · · · · · · · · · · · · · · · · · ·	2
ADDRESS								15	<del></del>	7
One	e PPG Place	, Pittsbur	gh, PA l	15272				ი	•	S. A. S. S. S. S. S. S. S. S. S. S. S. S. S.
WELL NAME Wa:	rd						WELL NUMBER	,	Bog	42)\ 34.\
NELL LOCAT				2.5		0.53	TOWNSHIP	T	QUUNTY	sta 📆
C 7		SE % SEC	. <sup>11</sup> T	. 16N		9W	Grant		<b>B</b> ecos	sta 🤼
	y Hole	torage, or Test)				30	FORMATION Cincinna	tian	U	
	ING STARTED		ING COMPLET	ED	WAS PE	AMISSION OF	DEPT. OF NATURAL PLUGGING BEGAN?		RCES X YES	□no
NAME OF DE	PARTMENT REPRES	ENTATIVE WHO	UTHORIZEDO	A SUPER	VISED P	LUGGING		······		
				<del></del>						<del></del>
CASING SIZE	WHERE SET	AMOUNT REGOVERED	SHOT OR		T	YPE OF BRIDE	SES OR PLUGS		DEPTH PLACED	NUMBER
24"	54'				ment	(Howcoli	te)		015	196 s
,	8" 8651				nent	7 11	)		1109'	188 s
9 5,	8" 5372'		ļ	<u> </u>	ment	7 11			3239 r 2369 r	188 s
				<b>.</b>	nent	<del>(</del>	- <del></del>		499 ·	188 s
				1	nent	(common)	<u> </u>	- 1-	624	110 s
			<u></u>	1	nent	( " )		<u>-</u>	312	110 s
DET TIBE IN	DETAIL HOW WELL	WAS PLUGGED	Pan in	with	27/	g" tubir	g, tagged c	ement	at 50	1181
- circı	ilated out i	mud. Hallil			,		lugs: 196			
188 s	x at 4109'	, 188 sx a	3239'.	188	sx. a	t 2369'.	and 189 sx	. at	1499'.	
							d 110 sx con		cement	at
312'.	Cut off	13 3/8" and	9 5/8".	Car	oped	with $3/8$	' steel pla	te.		
***************************************				<del></del>	·			· · ·	· .	
								(USE 8E	VERSE SID	E IF NEEDE
					<del></del>				721132 373	C II ICCINC
Were tools, tu	bing, casing, etc.,	lost or left				If yes, give	details:			
	fore or during plug		YI	ES ,	NO					
	Company pump m			r	If yes, give name and address: Halliburton, Mt. Pleas					
spot cement,	or set bridge plugs	?	YY YE	ES L	_] NO		2200200117 111		Casanc	, MI
Was the well	plugged by a Comp	any or				If ves, give	name and address:			
	ther than Owner or	•	☐ YI	ES 🛴	. NO	, 55, 3				
					· ·					
Representatives	of Owner, Operator,	Company, or Contr	actor who wither	sed plugg	ing					
					510455					
. Dona	ld D. Metzo	zer			FICATE	: m Chemic	als			
· · · · · · · · · · · · · · · · · · ·			tor to make th	- 01			was prepared under	my sun		company,, id direction
	facts stated herein a	-					proported thisti	, 30p	. 5. 1.1.OH GI	a direction
SIGNATURE			ADDRESS		_		TITLE		<del></del>	
Wex.	cate a bly	200,2	11126 1	40th	Ave.	, Hersey	, MI Resid	ent	Manage:	r
		1/	FI	NAL IN	SPECTI	ONS				
DEFARTMENT	REPRESENTATIVE	<b>=</b>							DATE	
DEPARTMENT	HI PRESENTATIVE	<u> </u>	<del></del>				· · · · · · · · · · · · · · · · · · ·		DATE	

OPERATORS USE	•
	<b>—</b>
	·
•	
DEPARTMENT USE ONLY Supplemental Plugging Data and Site Conditions:	
	<del></del>
	<b>~</b>
	<del></del>
	<del></del>
•	

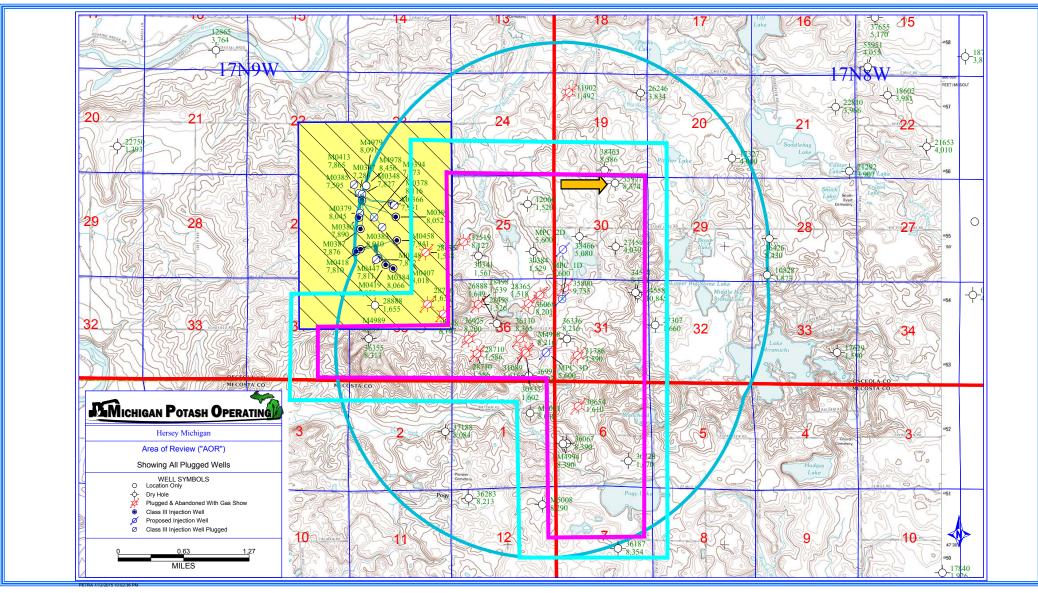
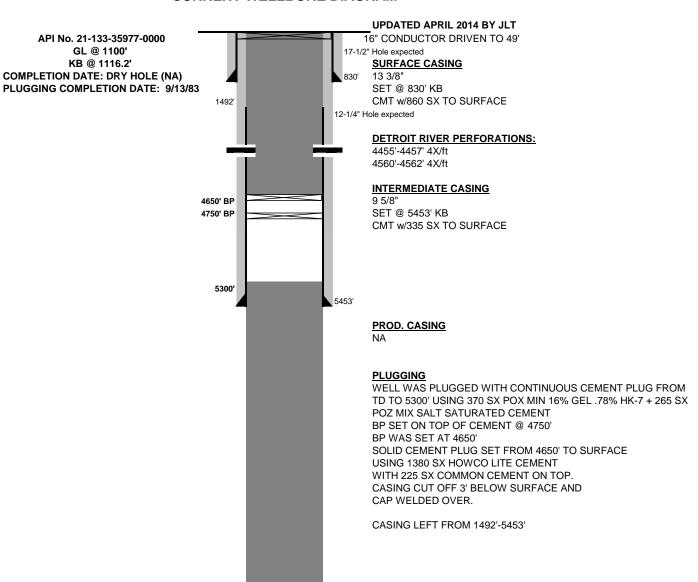


Figure B4. Map showing all plugged wells, shallow (that do not penetrate any confining horizon) or deep (that penetrate confining horzion) within the area of review. Total Depths are listed. There are several shallow Michigan Stray wells that do not penetrate the injection or confining horizon.

#### WARK 1-30 NE NW NE Sec 30 T17N R8W OSCEOLA COUNTY, MI

#### **CURRENT WELLBORE DIAGRAM**



TD @ 8371' KB

#### **WARK 1-30 WELL HISTORY**

<u>DATE</u> <u>DESCRIPTION</u>

8/13/1982 SPUD.

9/13/1982 DRILLING COMPLETED. FORMATION COMPLETED IN CINCINNATIAN.

16" CONDUCTOR SET AT 49' 13 3/8" SET AT 830'; 860 SX 9 5/8" SET AT 5453'; 335 SX

9/16/1982 PERFORATIONS AT 4455'-4457' AND 4560'-4562' (4X/ft)

PLUGGING STARTED

WELL WAS PLUGGED WITH CONTINUOUS CEMENT PLUG FROM TD TO 5300' USING 370 SX POX MIN 16% GEL .78% HK-7 + 265 SX

POZ MIX SALT SATURATED CEMENT BP SET ON TOP OF CEMENT @ 4750'

BP WAS SET AT 4650'

SOLID CEMENT PLUG SET FROM 4650' TO SURFACE

USING 1380 SX HOWCO LITE CEMENT WITH 225 SX COMMON CEMENT ON TOP. CASING CUT OFF 3' BELOW SURFACE AND

CAP WELDED OVER.

CASING LEFT FROM 1492'-5453' PLUGGING COMPLETED.

STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES

LOG OF OIL, GAS, DISPOSAL OR STORAGE WELL (ACT 61)
Submit in DUPLICATE Within 30 Days after Well Completion

PERMIT NUMBER	
35977	
DEEPENING PERMIT NUMBER	

Submit in DOPLICATE Wittin 30 Days after Well Complete								}								
NAME(S) & ADDRESS OF OWNER(S) SHOWN ON PERMIT							NAME & ADDRESS OF DRILLING CONTRACTOR(S)									
Willmet, Inc.							T. D. Provins Drilling Company									
2250 En	terpr	ise	Drive				2113 Enterprise Drive									
Mt. Ple							Mt. Pleasant, MI 48858									
LEASE NAM			NUMBER	SHOWN ON	PERMIT						1	ECTIO			ILLED	)
Wark	#1-30									<del>~</del>	<del></del>					
SURFACE L		N		SECTION		TOWNSHIP		RANGE			TOV	VNSHIE		Ε		
NE NW N					30	1	7N		8W				art			
FOOTAGES						•	ast/West)				cor	NTYN				
					983					tion	1		ceol			
SUBSURFAC	E LOCA	ATIO	N	SECTION		TOWNSHIE	,	RANGE			1,04	MSHIE	NAM	E		
FOOTAGES	·-·	Nost	th (Carrah)	L		L	ast/West)				100	NTYN	A NAC			
1				ing and				ing of ouar	ter ter	tion	1000	,,,,,,	IAIVIE			
DRILLIN					PTH OF WE		TYPE WE				┼—					
0_	13 <b>~</b> 82				371 Log_						1	F	LEVA	TION	ıs	
OBILLIN			FO	<b>{</b>	ON AT T.D.		1	ROTAR	X TO	OLS	K.B.			R.F.		
^  9 <u>-</u>	13-82				cinnatia			0то.					6.2	l .	1115	
T				PRODUCIA	NG FORMAT	ION(S)		CABLE			R.T.			Grd.		
E				.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	None	10.1107	i	To.							100	
LL				<u> </u>							<b></b>		-	L		
	CASING	, CA	SING LINE	RS AND CE	MENTING					PERFO	RATIC	ONS				
SIZE	W	HER	E SET	CEMI	ENT	Ft. Pulled		NUMB	FR						OP	EN
16"			49			~-	DATE	HOLE		INTER	VALF	PERFO	RATE	D	YES	NO
13 3/8"			830	86	0 Sx		9-16-8	2 4x/f	t.	44	455 <b>-</b> 57 &			X		
9 5/8"			453		5 Sx			·			560 - 62					
															Ĺ <u>-</u>	
	GR	oss	PAY INTER	RVALS		_	ALL OTHE	R OIL AND	GAS	SHOWS	OBSE	RVED	OR LO	OGGE	D	
FORMA	TION	0	IL OR GAS	FROM	то		ATION	OIL		EPTH	Sam-	WHER	r	ERVE Mud	D (X)	Fill
Non	е	$\downarrow$				FUHIM	FORMATION		711023		ples	Odor	Pits	Line	Log.	Uρ
<u></u>						Reed C	ity	Gas	4	3933	<u> </u>	ļ		<u> </u>	ļ	↓
<u></u>		4				Sour Z	-	Gas		4523	<del> </del>	<b>_</b>			<del> </del>	<del> </del>
<u></u>						Manito	ulin	Gas		3320	<u>l</u>	<u> </u>	<u> </u>		XX	l
	STIMU	AT	ION BY AC	ID OR FRAG	CTURING		WAT	ER FILL U	D (C I	LLOPI	ጎፍፐ ሶ	IRCIII	ΔΤΙΩ	u ti c	: 1 (X)	
<u> </u>			<del></del>							7						<del></del>
DATE			reated		s and amount		None F.U. L.C.			DEPTH AMOU		0141				
9-16-82	445	2	62	500	gal. 20%	HCL.	NO	ne	+	+						
			<del></del>		- <del></del>		<b>}</b>	·		╅┈╃						
							<b></b> -		+-	1-+			L			
<b> </b>			<del></del>				}		+-	+			L			
L	<u> </u>			~-			1						<u> </u>			
	MECHA	NIC	AL LOGS, L	IST EACH T	TYPE RUN		DEPTH C	ORRECTIO	N D	EVIATIO	N SU	RVEY	PLU	JGGE	DBAC	K
8rand		(x)	roe .	TYPEŞ	LOGGED IN	TERVALS	DEPTH	CORRECT	'N P	UN AT	DEG	REES	YES	NO	DEI	PTH
Schlumberger		X	LDT-C		200-8		<u> </u>	1	<b>⊸</b> ↓	2054		/4°	<b> </b>	+	+-	
Birdwell			Sonic		200-8		<u> </u>	<del> </del>	—	4348	<del>  _</del>	10	1	+		
91			DLL-M		. 200-			1	——	5882	1	/2°		1	1	
E P								1		7591		1°				
<u> </u>	\				<del></del>					·—. ·——						فلأحمر المعاو
						RODUCTION										
OIL - Bbls/	day G	RAV	ITY - OAP	I COND. B	bis/day G	AS - MCF/d	ay WATE	R - Bbls/di	1 H25	- Grain	s/100	cu. ft.	B.H.	P. AN	D DEP	тн
-									-+		_~-~					
		_									-					
I AM RESPO	NSIBLE	FO	H THIS REI	WRT, THE	INFORMAT	ION IS COM	PLETE AN	D CORREC	iΤ.							

NAME AND TITLE (PRINT)
William E. Booker, Geologist DATE 10-11-82 SIGNATURE

## STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES GEOLOGICAL SURVEY DIVISION

#### WELL PLUGGING RECORD

(Submit in TRIPLICATE Within 30 Days After Plugging is Completed)

	OCT
PERMIT NUMBER	0 4 1982
35977	
FIELD NAME	
Į.	

COMPLETE NAME(S) AND ADDRES	SS OF WELL OWNER			
Willmet, Inc., 2250 Er	nterprise Dr., Mt. Pleasa	nt, MI 48858		
COMPLETE LEASE OR FARM NAM	E(S)			WELL NUMBER
Wark				1-30
WELL LOCATION			TOWNSHIP	COUNTY
NE % NW % NI	E % SEC. 30 T. 17N	R. 8W	Evart	Osceola
TYPE OF WELL (Oil, Gas, Dry Hole,	etc.)	TOTAL DEPTH	FORMATION	
Dry hole		8375	Cincinnatian	
			ATIVE(S) WHO ISSUED PE	RMIT OR WITNESSED
PLUCCING		Jack	Snider	

	CASINO	RECORD	
SIZE CASING	DEPTH SET	AMOUNT RECOVERED	SHOT OR RIPPED
24"	49'	nil	
13 3/8"	832'	nil	nil
9 5/8"	5,453'	1,492'	shot
		ļ	
		+	
i		1 1	

BRIDGES OR PLUGS					
TYPE (Brush, Stone, Cement, Mechanical, etc.)	DEPTH PLACED	SACKS OF CEMENT AND ADDITIVES			
Cement	TD-5300	635 sacks			
B.P.	4750	Permanent			
B.P.	4650	Permanent			
Cement	4650-Surface	1380 sacks			
· · · · · · · · · · · · · · · · · · ·	<del> </del>				

Were tools, tubing, casing, etc., lost or left in the hole before or during plugging?	XYES	□no	If yes, give details: Casing left from 1492'-5453'
Did a Service Company pump mud, spot cement, or set bridge plugs?	X YES	□NO	If yes, give name and address: Halliburton Cementing Baker Tools
Was the well plugged by a Company or Contractor other than Owner or Operator?	YES	X NO	If yes, give name and address:
Representatives of Owner, Operator, Company, or plugging: Chet Lowery	r Contractor v	vho witnessed	
370 sacks Poz. min. 16% ge	l .78% HK permanent t type B. face usin	-7 plus 26 type B. P P. was se g 1380 sac	was set on top of cement t at 4650'. Solid cement ks HOWCO lite cement with
			(USE REVERSE SIDE IF NEEDED)

		(USE REVERSE SIDE IF NEEDED)
"I state that I am authorized by said Owner or Operator to ma tion, and that the facts stated herein are true, correct and com		
NAME AND TITLE (Typed or Printed)	<u> </u>	COMPANY NAME AND ADDRESS
Donald Smith, Exploration Engineer		Willmet, Inc.
SIGNATURE	DATE (Month, Day, Year)	2250 Enterprise Dr.
D fine	See 30/82	Mt. Pleasant, MI 48858

OPERATORS USE

Description of Detail (cont.) or Other Supplemental Data:		
P	1	
	-	
DEPARTMENT	USE ONLY	
Supplemental Plugging Data and Site Conditions:		· · · · · · · · · · · · · · · · · · ·
5/9/83 site is clean and recontoured, except	for a nile of soil landowner	Camo
by and said that he asked that the nile of ton	soil he left for his use and	comod
5/9/83 site is clean and recontoured, except by and said that he asked that the pile of top satisfied with the restoration; can recommend	approval (M. Moss)	
The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s	<u> </u>	
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1		
FINAL INSPECTIONS BY DEPART	IMENT REPRESENTATIVES	
	IMENT REPRESENTATIVES DIVISION	DATE
FINAL INSPECTIONS BY DEPART SIGNATURE		DATE
FINAL INSPECTIONS BY DEPART SIGNATURE		DATE 5/9/83
FINAL INSPECTIONS BY DEPART		DATE 5/9/83
FINAL INSPECTIONS BY DEPART SIGNATURE		DATE 5/9/83

### LANSING HAS COPY

#### GEOLOGICAL SURVEY DIVISION WELL PLUGGING RECORD

(Submit in TRIPLICATE Within 30 Days After Plugging is Completed)

PERMIT NUMBER	
35977	
FIELD NAME	

COMPLETE NAME(S) AND ADDE	ESS OF WELL OWNER					
Willmet, Inc., 2250		e, Mt. Ple	asant,	MI 48	1858	
COMPLETE LEASE OR FARM NA					<del></del>	WELLNUMBER
Wark						1-30
WELL LOCATION	<del></del>				TOWNSHIP	COUNTY
ne ¼ nw ¼	NE % SEC. 30	T. 17N	Į R.	W8	Evart	Osceola
TYPE OF WELL (Oil, Gas, Dry Hol	e, etc.)		TOTAL DE	PTH	FORMATION	
Dry Hole	•		8	327	Cincinnat	tian
DATE PLUGGING STARTED 9-14-82	DATE PLUGGING COI	MPLETED	DEPT. REP	~	ATIVE(S) WHO ISSUED Chael Moss	PERMIT OR WITNESSED

SIZE	DEPTH	AMOUNT	CUOTOD
CASING	SET	RECOVERED	SHOT OR RIPPED
16"	49		
13 13/8"	830	860 Sx	
9 5/8"	5453	335 Sx	1492

	BRIDGES OR PLUGS	·
TYPE (Brush, Stone, Cement, Mechanical, etc.)	DEPTH PLACED	SACKS OF CEMEN AND ADDITIVES
Cement	8374 to 4750	635 Sx
Baker Perm B.P.	4750	
Baker Perm B.P.	4650	
Cement	4650-Surface	1600 Sx
. <u></u>	<del> </del>	

Were tools, tubing, casing, etc., lost or left in the hole before or during plugging?	YES	<u>⊠</u> tvo	If yes, give details:
Did a Service Company pump mud, spot cement, or set bridge plugs?	ZX YES	□NO	If yes, give name and address: Hailliburton
Was the well plugged by a Company or Contractor other than Owner or Operator?	YES	NO XX	If yes, give name and address:
Representatives of Owner, Operator, Company, o plugging:	r Contractor v	who witnessed	Marvin Woods
			7.5
			from total depth to 4750 and went in poz with 16% gel and 265 sx poz mix,
salt saturated, attempted to comp			
			50 and circulated to surface using
1380 sx Howco Lite and 220 sx Cla			
2300 57 110405 2220 611 520 511 522			out of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the secon
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			- · · · · · · · · · · · · · · · · · · ·
			(USE REVERSE SIDE IF NEEDED)

		HON

"I state that I am authorized by said Owner or Operator to make this report; and that this report was prepared under my supervision and direction, and that the facts stated herein are true, correct and complete to the best of my knowledge."

NAME AND TITLE (Typed or Printed)

William E. Booker, Geologist

SIGNATURE

DATE (Month, Day, Year)

10-11-82

COMPANY NAME AND ADDRESS

Strickler Geological Services, Inc.

1425 S. Mission Street

Mt. Pleasant, MI 48858

# This document paid for with State fund

#### DAY DESTRUCTION Permittee - Orig & 1 copy Division Office - 2 copies Field Office -- File copy Others - On request

#### STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES PERMIT TO PLUG AND ABANDON GEOLOGICAL SURVEY DIVISION

PERMIT	NUMBER
1	35977
FIELD N	AME
1	

NAME	AND	ADDRES	SS OF	PERMITTEE
Wi	1))	met,	Inc	<b>.</b>

LEASE NAME AND WELL NO

Wark #1-30

CCARON ('4 '4 '4 or other)

SECTION 30

7 77NR

LOWNSHIP

COUNTY

NE NW NE

Osceola, Evart PLUGGING PERMIT REQUESTED BY & DATE

INPE OF WELL (Oil, Gas, Dry Hole, etc.) Dry hole

DATE COMPLETED 8/12/82

DATE PLUGGING WILL START 8/12/82

Don Smith 8/12/82

LAST PRODUCTION

MCFGPO

PLUGGING TO BE DONE BY **Halliburton** 

PERMIT MAILED TO

Willmet, Inc.

COPIES MAILED TO

2250 Enterprise

Mt. Pleasant, MI 48858

	CASING AND CEMENTING RECORD							
ESTI DIA	CASING DIA. & WT /FT	depths set	CEMENT QUANTITY, TYPE ADDITIVES	CMT TOP	PERFORATIONS			
	4	49	UP					
	133/8"	832	860	circl				
	95/8"	5453	335	4220				

GEOLOGIC DATA; GAS AND OIL SHOWS; DRILLING AND COMPLETION DATA:

CONFIDENTIAL

#### PLUGGING REQUIREMENTS.

Plugging requirements outlined are to be executed in accordance with the provisions of Act 61, P.A. 1939, as amended, and miles and orders admitted thereunder

Previously plugged back w/continuous cmt. plug from TD to 5300' and BP at 4750' and tested 4655-4662'. Set permanent BP at 4650'. Rip and pull 95/8". Run tubg. to 4650' and spot continuous cmt. plug to surface. Cut 113/4" and 24" 3' below surf. and weld 1/2" steel plate.

NOTE BONDS CANNOT BE RELEASED UNTIL A PLUGGING IS COMPLETED, CELLAR RAT HOLE AND PITS FILLED, WELL SITE RESTORED AND RECORDS FILED. WATER WELLS MUST BE IT LUGGED ACCORDING TO RULE 166 OF ACT 294 P.A. 1965. GROUND WATER QUALITY CONTROL. It is further made a requirement of this permit that the applicant give notice to the public sublides in accordance with Act 53, P.A. 1974. C.L. 460 701 to 460 718 and comply with each of the requirements of the act.

OFFICE

AUTHORIZED BY (signature)

Cadillac D#6

OATE 10/6/82

## STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES SUPERVISOR OF WELLS

LANSING HAS COPY!

#### **WELL REWORK RECORD**

FILE IN DUPLICATE WITHIN 30 DAYS AFTER COMPLETION OF REWORK OR DEEPENING
(Replaces GS 38)

	упери	100 00 001	
PERMIT NUMBER 35977	DEEPENING PERMIT NUMBER	FIELD NAME Wilde	at
NAME AND ADDRESS OF WELL Willmet, Inc., 2250	OWNER ) Enterprise Drive, Mt. P	leasant, MI 48858	
LEASE OR FARM NAME Wark			WELL NUMBER
WELL LOCATION NE NW NE	SECTION 30 T. 17	TOWNSHIP N R. 8W Evart	COUNTY Osceola
WELL COMPLETED FOR (Oil, Gar Injection, etc.) Dry Ho	s, Gas Storage, Brine Disposal, Water ole	TOTAL DEPTH AFTER REWORK 4750	MECHANICAL LOGS RUN NO ADDITIONAL LOGS
WELL COMPLETED IN (Name Ro Dry Hole in Sour Zo	ck Formation and Zone of Completion) one	DATE REWORK COMMENCED 9-17-82	DATE REWORK COMPLETED 9-19-82
NAME AND ADDRESS OF CONTI T. D. Provins, 2113	RACTOR B Enterprise Drive, Mt. P	leasant, MI 48858	

Casing		Ce	ment	Perforations		Acid or Fracture	Perforations
Size	Depth	Sacks	Туре	From	То	Treatment Record	If plugged, how?
6"	491						
3 3/8"	830 1	860	200 C1 A	660 POZ			
9 5/8"	5453'	335	C1 A				
				<u> </u>			

Size         Depth         Sacks         Type         From         To         Treatment Record           5/8"         5453         335         4x/ft         4455         4457         500 gal. 20% HCL	If plugged, how?
5/8" 5/53 235 /yr/f+ //55 //57 500 cc1 20% HCI	in bindhan' isawi
2/0   2422   232   4X/IC   4422   4427   200 Kai: 20% HCL	
" 4560 4562	

DESCRIBE REWORK OPERATIONS IN DETAIL

Run in and circulated cement from TD to 4750, Set bridge plug at approximately 4750. Perforated from 4455-57 and 4560-62, swabbed back 50 bbls load water and 30 bbls. formation water. Ran in and set bridge plug at 4650 and circulated cement to surface (1380 sx).

#### GEOLOGICAL FORMATION RECORD OF DEEPENING

FROM	то	FORM	ATION (type, color	, hardness)	FROM	TO	FORMA	TION (type, color,	hardness)
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	DAILY P	RODUCTION	TEST RECORD	)	DAILY INJ	ECTION TES	T RECORD I	F INJECTION W	ELL (OR BDW)
	Bar	rels	Pres	sure		Barrels	Pr	essure	Specific Gravity
Date	Oil	Water	Tubing	Casing	Date	of Water	Beginning	Ending	of Water
9-19-82	0	30 bbls.		<del> </del>	1		<u> </u>		<del> </del>
		1 20 0072*	1		II	1		1	1
		20 DDT2+			 				1
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ADDRESS (If different than well owner)

1425 S. Mission

DATE (Month, Day, Year)

1-20-83

NOTE: IF GAS WELL, RECORD FLOW TEST UNDER "DAILY PRODUCTION TEST RECORD"

SIGNATURE (Well Outher or Authorized Representative)

## STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES

**GEOLOGICAL SURVEY DIVISION** 

LEAVE BLANK	
DEEPENING PERMIT NUMBER	
DATE ISSUED	-

APPLICATION

OCT 071982
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LANS 176 /c

		TO			
PERMIT NUMBER	T CHANG	E WELL STATUS		FIELD NA	ME
35977	(SUBMIT	IN QUADRUPLICATE)		1	
NAME AND ADDRESS OF WELL OF	NNER				
Willmet, Inc., 2250 E	nterprise Dr., Mt. Plea	asant, MI 48858			
LEASE OR FARM NAME				WELL NU	MBER
· Wark	-			1-30	
WELL LOCATION	SECTION		TOWNSHIP		COUNTY
NE/4 of NW/4 of NE/4	30 r. 17	7N R.8W	Evart		Osceola
	(Deepen, Plug Back, Convert to Injec	tion or Disposal Well, Ten	nporarily Abandon	etc.)	
APPROVAL REQUESTED TO PI	ug back		*		
DATE DRILLING COMPLETED	DATE LAST PRODUCED .	LAST PRODUCTION	ON (Amt/day)		·····
8-12-82	!	0	IL,	WTR.,	M.C.F. GAS
WORK TO BE DONE BY				WILLSTA	RT (DATE)
				8-16-8	82

	CASING AN	ND CEMENTING	RECORD
SIZE	DEPTH SET	NO, SACKS CEMENT	PERFORATIONS
24"	491	driven	
13 3/8	' 832' c	ement to s	urface
9 5/8		cement to	

FORMATION RECORD

[Formation and depth, Oil, Gas & Wtr. shows, etc.)

DESCRIBE PROPOSED WORK IN DETAIL:

Continuous cement plug from T. D. 8375' to 5300'. Plug consists of 370 sacks Poz. min. 16% gel .78% HK-7 plus 265 sacks Poz. mix salt saturated cement. A Baker permanent type B. P. was set on top of cement at 4750'. A Baker permanent type B. P. was set at 4650'. Solid cement plug set from 4650' to surface using 1380 sacks HOWCO lite cement with 225 sacks, common cement on top. Casing cut off 3' below surface and cap welded over.

\*Perf. 4655-67 and 4660-62 at 4 spf and test these zones before completing plugging.

The proposed work as outlined above and approved with the provisions of Act 61, P.A. 1939 and the ru	by the Supervisor or his Authorized Representative viles and regulations issued and adopted thereunder.	will be executed in accordance
SIGNATURE (Well Owner or Authorized Representative)		DATE So/82
APPROVED BY John M. Smiles	FIELD OFFICE	10/4/82
NOTE: WELL SEWORK RECORD, Form R-7212, is to be fille	ed in DUPLICATE within 30 days after completion	R 7237 3/73

#### APPLICATION FOR PERMIT TO DRILL OR DEEPEN A WELL FOR OIL, GAS, BRINE DISPOSAL, HYDROCARBON STORAGE OR SECONDARY RECOVERY

Under Authority of Act 61, P.A. of 1939, As Amended

MAJL TO: STATE OF MICHIGAN **DEPARTMENT OF NATURAL RESOURCES** -- GEOLOGICAL SURVEY DIVISION (2)230028, Lansing, Michigan 48909

25-1391931  — Cancel and 5. Fee enclosed:	SEE INSTRUCTIONS ON REVERSE SIDE  25-1391931  3. Application for permit to drill for: Brine Oil and Oil and Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Disposal Dis	(2) Li red, Employer Ident, No. 1 Li Soc. Security No.					00 5 4 5					
Cancel and Transfer 5. Fee enclosed:  No D Yes \$100.00	3. Application for permit to drill for:   Oil and   Brine   Hydrocarbon   Secondary   General   Secondary   Cancel and   Secondary   Oil and   Disposal   Storage   Recovery   Deepen   Application   Transfer   No   No   No   No   No   No   No   N	AMERICAN AND AND AND AND AND AND AND AND AND A		ON REVERS	E SIDE		I		int. No. j L	) Soc. S	ecurny r	<b>40</b> .
Cancel and No Dayes \$100.00	Oil and Brine Hydrocarbon Secondary Deepen Application Transfer No No No No No No No No No No No No No	25-1391931		ON REVERS				91931				
	6. Do prior permits exist for this well?  8. Applicant: (name each "owner" as they are bonded)  1. No. 1. Yes   Drilled   Termin'd		Oil and Bring Hydrocs	urbon _ Secor	ndary )	Revise	Cai	ncel and I			100	00
Phone:	No D Yes L Drilled D Termin'd	Oil and Bring Hydrocarbon Secondary	A) or Gas Disposal Storage	☐ Recov				ınsfer	∐ No	A Yes	\$TN0	<u>.UU</u>
Phone:	U No UX Yes ] □ Drilled □ Termin'd   LITTLEAST TAIC	Oil and Or Gas Disposal Storage Recovery Deepen Application Transfer No Di Yes \$100.00		8. Applicant: (nan	ne each "owner"	as they are bonded)	)					
Phone:		Oil and Brine Hydrocarbon Secondary Deepen Application Transfer No M Yes \$100.00  6. Do prior permits exist for this well?  8. Applicant: (name each "owner" as they are bonded)	☐ No ☐ Yes ☐ Drilled ☐ Termin'd	WILLMET	TNC							
Phone:	7. List each permit number	Oil and Brine Hydrocarbon Secondary Or Gas Disposal Storage Recovery Deepen Application Transfer No M Yes \$100.00  6. Do prior permits exist for this well?  8. Applicant: (name each "owner" as they are bonded)	7. List each permit number	7 "*******	11101							
	Minoral Woll Act #10029 9 Address (operator only if more than one "owner") Phone:	Oil and or Gas Disposal Storage Deepen Deepen Deepen Application Transfer No No No No No No No No No No No No No	Mineral Well Act #10029	9. Address: (open	ator only if more	than one "owner")			Phone:			<u> </u>
()	THICK AT HELL MEDES	Oil and Oil and Oisposal Storage Storage Deepen Deepen Application Transfer No No No No No No No No No No No No No	LOCATE WELL AND OUTLINE UNIT	]								
ant, MI 48858 (517) 773-3949	LOCATE WELL AND OUTLINE UNIT	Oil and or Gas Disposal Storage Deepen Deepen Application Transfer No Deepen No No No No No No No No No No No No No	ON SECTION PLAT - 640 ACRES	2250 Ent	erprise [	Or., Mt. Pī	leasant,	MI 4885	8 (51	7) 77.	3-394	9
Well number:	LOCATE WELL AND OUTLINE UNIT	Oil and or Gas Disposal Storage Deepen Deepen Application Transfer No Deepen No No No No No No No No No No No No No	N.	10. Lease or well	name: (be brief a	as possible)						
1~30	LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES 2250 Enterprise Dr., Mt. Pleasant, MI 48858 (517) 773-3949  10. Lease or well name: (be brief as possible) Well number:	Oil and or Gas	1 1	Wark					1-30			
	LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES 2250 Enterprise Dr., Mt. Pleasant, MI 48858 (517) 773-3949  10. Lease or well name: (be brief as possible)  Well number:	Oil and or Gas	┝╼ <i>╅</i> ╼╅╾┢╼╉╍╏╌╉╍┾╍┪									
	LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES  2250 Enterprise Dr., Mt. Pleasant, MI 48858 (517) 773-3949  10. Lease or well name: (be brief as possible)  Wark  1-30  11. Surface owner:	Secondary   Deepen   Revise   Cancel and   No   No   Yes   100.00		John A.	& Linda W	√ark						
	LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT—640 ACRES  2250 Enterprise Dr., Mt. Pleasant, MI 48858 (517) 773-3949  10. Lease or well name: (be brief as possible)  Wark  1-30	Secondary   Deepen   Revise   Cancel and   No   No   Yes   100.00		12. Address:				( )	Phone:			
Phone:	LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES  2250 Enterprise Dr., Mt. Pleasant, MI 48858 (517) 773-3949  10. Lease or well name: (be brief as possible)  Wark  1-30  11. Surface owner:  John A. & Linda Wark  12. Address:  Phone:	Secondary   Deepen   Revise   Cancel and   No   Yes \$100,00	┟╍┩╾┪╾┢╼╊╼╄╼┩╼╣╾┪	115th Av	/enue, Eva	art, MI 496	531	(616)	734-5	766		
	LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES  2250 Enterprise Dr., Mt. Pleasant, MI 48858 (517) 773-3949  10. Lease or well name: (be brief as possible)  Wark  1-30  11. Surface owner:  John A. & Linda Wark  12. Address:  Phone:	Secondary   Deepen   Revise   Cancel and   No   Yes \$100,00	w	13. Surface locati	ion description							
(616) 734-5766	LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT—640 ACRES  2250 Enterprise Dr., Mt. Pleasant, MI 48858 (517) 773-3949  10. Lease or well name: (be brief as possible)  Wark  1-30  11. Surface owner:  John A. & Linda Wark  12. Address: 115th Avenue, Evart, MI 49631 (616) 734-5766  13. Surface location description	Cili and   Disposal   Storage   Recovery   Deepen   Application   Transfer   No   Yes \$100.00	"   1   3   1   1   1	NE 4	of NW	Wast NE Was	Section 30	r. 17N	1 .	a. 8W		
(616) 734-5766	LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT—640 ACRES  2250 Enterprise Dr., Mt. Pleasant, MI 48858 (517) 773-3949  10. Lease or well name: (be brief as possible)  Well number:  Wark  1-30  11. Surface owner:  John A. & Linda Wark  12. Address:  115th Avenue, Evart, MI 49631 (616) 734-5766	Cili and   Disposal   Storage   Recovery   Deepen   Application   Transfer   No   Yes \$100.00	├ <del>├</del> ┤┥-┽-┿-┾┤	14. Township					County			
(616) 734-5766 n 30 r. 17N n. 8W	LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT—640 ACRES  2250 Enterprise Dr., Mt. Pleasant, MI 48858 (517) 773-3949  10. Lease or well name: (be brief as possible)  Wark  1-30  11. Surface owner:  John A. & Linda Wark  12. Address: 115th Avenue, Evart, MI 49631 (616) 734-5766  13. Surface location description  NE % of NW % of NE % Section 30 r. 17N R. 8W	Secondary   Deepen   Revise   Cancel and   No   No   No   No   No   No   No   N		Evart				05	ceola			
(616) 734-5766 n 30 r. 17N n. 8W	LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT—640 ACRES  2250 Enterprise Dr., Mt. Pleasant, MI 48858 (517) 773-3949  10. Lease or well name: (be brief as possible)  Wark  1-30  11. Surface owner:  John A. & Linda Wark  12. Address:  15th Avenue, Evart, MI 49631 (616) 734-5766  13. Surface location description  NE W of NW W of NE W Section 30 T. 17N R. 8W  14. Township  County	Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Stor		15. Bottom hole	tocation description	on if directional drift						
(616) 734-5766 n 30 r. 17N s. 8W	LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT—640 ACRES  2250 Enterprise Dr., Mt. Pleasant, MI 48858 (517) 773-3949  10. Lease or well name: (be brief as possible)  Wark  1-30  11. Surface owner:  John A. & Linda Wark  12. Address:  15th Avenue, Evart, MI 49631 (616) 734-5766  13. Surface location description  NE W of NW W of NE W Section 30 T. 17N R. 8W  14. Township  County	Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Stor	1	٧	4 of	¼ of ¼	Section	Τ.		A	_	
(616) 734-5766 n 30 r. 17N s. 8W County Osceola	LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES  2250 Enterprise Dr., Mt. Pleasant, MI 48858 (517) 773-3949  10. Lease or well name: (be brief as possible)  Wark  1-30  11. Surface owner:  John A. & Linda Wark  12. Address:  115th Avenue, Evart, MI 49631 (616) 734-5766  13. Surface location description  NE 4 of NW 44 of NE 44 Section 30 T. 17N R. 8W  14. Township  Evart  Osceola  15. Bottom hole location description if directional drill	Secondary   Deepen   Revise   Cancel and   No   No   No   No   No   No   No   N		16. Township					County			
(616) 734-5766  1 30 T. 17N A. 8W  County Osceola	LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES  2250 Enterprise Dr., Mt. Pleasant, MI 48858 (517) 773-3949  10. Lease or well name: (be brief as possible)  Well number:  Wark  1-30  11. Surface owner:  John A. & Linda Wark  12. Address:  115 th Avenue, Evart, MI 49631 (616) 734-5766  13. Surface location description  NE % of NW % of NE % Section 30 r. 17N a. 8W  14. Township  Evart  Osceola  15. Bottom hole location description if directional drill  16. Wa of W. Section T. A.	Secondary   Deepen   Revise   Cancel and   Transfer   No   Yes   100,000	S	1								
(616) 734-5766  1 30 T. 17N A. 8W  County Osceola	LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT—640 ACRES  2250 Enterprise Dr., Mt. Pleasant, MI 48858 (517) 773-3949  10. Lease or well name: (be brief as possible)  Wark  1-30  11. Surface owner:  John A. & Linda Wark  12. Address:  115th Avenue, Evart, MI 49631 (616) 734-5766  13. Surface location description  NE % of NW % of NE % Section 30 T. 17N A. 8W  14. Township  Evart  Osceola  15. Bottom hole location description if directional drift  16. Township  County  County  County  County	Secondary   Deepon   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise	17. LOCATE WELL IN TWO DIRECTIONS FROM NEARES	LINES OF QUART	ER SECTION AND	DRILLING UNIT.						
(616) 734-5766  1 30 T. 17N A. 8W  County Osceola	LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT 640 ACRES  2250 Enterprise Dr., Mt. Pleasant, MI 48858 (517) 773-3949  10. Lease or well name: (be brief as possible)  Wark  1-30  11. Surface owner:  John A. & Linda Wark  12. Address:  115th Avenue, Evart, MI 49631 (616) 734-5766  13. Surface location description  NE % of NW % of NE % Section 30 T. 17N A. 8W  14. Township  Evart  Osceola  15. Bottom hole location description if directional drill  16. Township  County  County  County	Secondary   Deepon   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise	Surface 330 M 400 (N/S) N	lina	of quarter section	0 AND 98	33 tt. tr	om (E/W)	W	ine of dua	rter secti	on.
(616) 734-5766  n 30	LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES  10. Lease or well name: (be brief as possible)  Wark  11. Surface owner:  John A. & Linda Wark  12. Address:  115 th Avenue, Evart, MI 49631  NE w. of NW w. of NE w. Section 30 r. 17N a. 8W  14. Township  Evart  Osceola  15. Bottom hole tocation description if directional drill  Va of w. of W. Section T. a.  16. Township  Township  Township  17. Locate well in two directions from Nearest Lines of Quarter Section and DrillLing Unit.	Secondary   Deepen   Revise   Recovery   Deepen   Revise   Revise   Recovery   Deepen   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Rev			OI quarter adotto			o (** **,				
(616) 734-5766  n 30	LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES  10. Lease or well name: (be brief as possible)  Wark  11. Surface owner:  John A. & Linda Wark  12. Address:  115 th Avenue, Evart, MI 49631  NE w. of NW w. section 30 r. 17N a. 8W  14. Township  Evart  Osceola  15. Bottom hole focation description if directional drill  Va of va of va of va of va Section T. a.  16. Township  Township  Township  Lines of Quarter Section and DrillLing Unit.	Secondary   Deepen   Revise   Recovery   Deepen   Revise   Revise   Recovery   Deepen   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Revise   Rev	Bot. Hole b. Location:ft. from (N/S)	Line	of quarter section	n AND		om (E/W)	L	ine of qua	rter section	on.
(616) 734-5766  n 30 r. 17N n. 8W  County  Osceola  T. R.  County  Line of quarter section.	LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT – 640 ACRES  2250 Enterprise Dr., Mt. Pleasant, MI 48858 (517) 773–3949  10. Losse or well name: (be brief as possible)  Well number:  1-30  11. Surface owner:  John A. & Linda Wark  12. Address: 115th Avenue, Evart, MI 49631 (616) 734–5766  13. Surface location description  NE 1/4 of NW 1/4 of NE 1/4 Section 30 T. 17N A. 8W  14. Township  Evart  Osceola  15. Bottom hole tocation description if directional drift  16. Township  Surface  17. Locate Well in two directions from Nearest Lines of Quarter Section. AND 98.3 It. from (E/W) Well number:  Use of Quarter Section.  NE 1/4 of 1/4 Section T. A. B. Line of Quarter Section.  Line of Quarter Section.  AND 98.3 It. from (E/W) Well number:  Well number:  Well number:  Well number:  1-30  11. Surface well name: (be brief as possible)  Well number:  1-30  11. Surface well name: (be brief as possible)  Well number:  1-30  15. Surface well name: (be brief as possible)  Well number:  1-30  15. Surface well name: (be brief as possible)  Well number:  1-30  15. Surface well name: (be brief as possible)  Well number:  1-30  15. Surface well name: (be brief as possible)  Well number:  1-30  15. Surface well name: (be brief as possible)  Well number:  1-30  15. Surface well name: (be brief as possible)  Well number:  1-30  15. Surface well name: (be brief as possible)  Well number:  1-30  15. Surface well name: (be brief as possible)  Well number:  1-30  15. Surface well name: (be brief as possible)  Well number:  1-30  15. Surface well name: (be brief as possible)  Well number:  1-30  15. Surface well name: (be brief as possible)  Well number:  1-30  15. Surface well name: (be brief as possible)  Well number:  1-30  15. Surface well name: (be brief as possible)  Well number:  1-30  15. Surface well name: (be brief as possible)  Well number:  1-30  15. Surface well name: (be brief as possible)  Well number:  1-30  15. Surface well name: (be brief as possible)  Well number:  1-30  15. Surface well name: (be brief as possible)  Wel	Secondary   Deepen   Revise   Cancel and   No   No   No   No   No   No   No   N										
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(616) 734-5766  1 30 r. 17N A. 8W  County  Osceola  T. A.  County  Line of quarter section.  It. from (E/W) Line of quarter section.	LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT—640 ACRES  2250 Enterprise Dr., Mt. Pleasant, MI 48858 (517) 773-3949  10. Lease or well name: (be brief as possible)  Wark  1-30  11. Surface owner:  John A. & Linda Wark  12. Address: 115th Avenue, Evart, MI 49631 (616) 734-5766  13. Surface location description  NE w of NW v. of NE v. Section 30 r. 17N a. 8W  14. Township  Evart  Osceola  15. Bottom hole tocation description if directional drill  16. Township  Surface  a. Locate Well in mmber:  Well number:  John A. & Linda Wark  1-30  17. Locate Well in mmber:  John A. & Linda Wark  10. Lease or well name: (be brief as possible)  Well number:  John A. & Linda Wark  1-30  17. Locate Well in mmber:  John A. & Linda Wark  10. Lease or well name: (be brief as possible)  Well number:  John A. & Linda Wark  1-30  17. Locate Well in mmber:  John A. & Linda Wark  10. Lease or well name: (be brief as possible)  Well number:  John A. & Linda Wark  1-30  17. Locate Well in mmber:  John A. & Linda Wark  1-30  18. Surface owner:  John A. & Linda Wark  10. Lease or well name: (be brief as possible)  Well number:  John A. & Linda Wark  1-30  10. Lease or well name: (be brief as possible)  Well number:  John A. & Linda Wark  1-30  1. Locate Well in mmber:  John A. & Linda Wark  1-30  To John A. & Linda Wark  1-30  To John A. & Linda Wark  1-30  To John A. & Linda Wark  1-30  To John A. & Linda Wark  1-30  To John A. & Linda Wark  1-30  To John A. & Linda Wark  1-30  To John A. & Linda Wark  1-30  To John A. & Linda Wark  1-30  To John A. & Linda Wark  1-30  To John A. & Linda Wark  1-30  To John A. & Linda Wark  1-30  To John A. & Linda Wark  1-30  To John A. & Linda Wark  1-30  To John A. & Linda Wark  1-30  To John A. & Linda Wark  1-30  To John A. & Linda Wark  1-30  To John A. & Linda Wark  1-30  To John A. & Linda Wark  1-30  To John A. & Linda Wark  1-30  To John A. & Linda Wark  1-30  To John A. & Linda Wark  1-30  To John A. & Linda Wark  1-30  To John A. & Linda Wark  1-30  To John A. & Linda Wark  1-30  To John A. & Li	Secondary   Deepen   Revise   Recovery   Deepen   Reprise   Recovery   Recovery   Deepen   Reprise   Recovery   Recovery   Deepen   Recovery   Recovery   Recovery   Deepen   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery										
(616) 734-5766  1 30 r. 17N A. 8W  County  OSCEOTA  T. A.  County  Line of quarter section.  It. from (E/W) Line of quarter section.  It. from (E/W) Line of drilling unit.	LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES  10. Lease or well name: (be brief as possible)  Wark  11. Surface owner:  John A. & Linda Wark  11. Address:  115th Avenue, Evart, MI 49631  12. Address:  115th Avenue, Evart, MI 49631  13. Surface location description  NE is of NW is of NE is section 30 in 17N in a. 8W  14. Township  Evart  Osceola  15. Bottom hole location description il directional drill  Is do is of is section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section	Mo or Gas   Disposal   Hydrocarbon   Recovery   Deepen   Application   Transfer   No   Mo   Yes \$100.00	•	Inc. , 2111			t. Pleasa	nt. MI		•	CO4C	
(616) 734-5766  1 30 r. 17N A. 8W  County  OSCEOTA  T. A.  County  Line of quarter section.  It. from (E/W) Line of drilling unit.  Telephone:	LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT—640 ACRES  2250 Enterprise Dr., Mt. Pleasant, MI 48858 (517) 773-3949  10. Lease or well name: (be brief as possible)  Wark  11. Surface owner:  John A. & Linda Wark  12. Address: 115th Avenue, Evart, MI 49631 (616) 734-5766  13. Surface location description  NE w. of NW w. of NE w. section 30 r. 17N a. 8W  14. Township  Evart  OSCeola  15. Bottom hole tocation description il directional drill  Va of w. of w. section  N. Evart  OSCeola  15. Locate well in two directions from Nearest Unics of Quarter Section and Drilling Unit.  Bot. Hole  D. Location:  It. from (N/S)  Line of quarter section.  Address:  Telephone:  Telephone:  Telephone:  Telephone:  Telephone:  Telephone:  Telephone:  Telephone:  Telephone:  Telephone:  Telephone:  Telephone:  Telephone:  Telephone:  Telephone:  Telephone:  Telephone:  Telephone:  Telephone:  Telephone:  Telephone:  Telephone:  Telephone:  Telephone:  Telephone:  Telephone:  Telephone:  Telephone:  Telephone:  Telephone:	Mo or Gas   Disposal   Storage   Recovery   Deepen   Application   Transfer   No   No   Yes   100.00				,	~		\ · ,	113-	b94b	
(616) 734-5766  1 30 r. 17N R. 8W  County  Osceola  T. R.  County  Line of quarter section.  It. from (E/W) Line of drilling unit.  Telephone:  Pleasant, MI (517) 773-6946	LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES  2250 Enterprise Dr., Mt. Pleasant, MI 48858 (517) 773-3949  10. Lease or well name: (be brief as possible) Wark  11. Surface owner: John A. & Linda Wark  12. Address: 11. Surface location description NE is of NW is of NE is section 30 in the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following the following	Secondary   Deepen   Recovery   Deepen   Recovery   Recovery   Deepen   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Rec				ormation 22	<ol><li>Is sour oil or g</li></ol>	gas expected?		1/3-	5946	
Phone:	2250 Enterprise Dr., Mt. Pleasant, MI 48858 (517) 773-3949  10. Lease or well name: (be bref as possible)  Wark  11. Surface owner:  John A. & Linda Wark  12. Address: 115th Avenue, Evart, MI 49631 (616) 734-5766  13. Surface location description  NE is of NW is of NE is section 30 r. 17N a. 8W  14. Township  Evart  Osceola  15. Bottom hole location description if directional drift  Is of ward in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section in the section	Secondary   Deepen   Review   Cancel and   No   No   No   No   No   No   No   N	v L		- Cincin						b946	·
(616) 734-5766  1 30 r. 17N s. 8W  County  Osceola  T. s.  County  Line of quarter section.  It. from (E/W) Line of quarter section.  It. from (E/W) Line of drilling unit.  Telephone:  Pleasant, MI (517) 773-6946  Pur oil or gas expected?	LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT - 640 ACRES  2250 Enterprise Dr., Mt. Pleasant, MI 48858 (517) 773-3949  10. Lease or well name: (be brief as possible)  Well number:  1-30  10. Lease or well name: (be brief as possible)  Wark  1-30  11. Surface owner:  John A. & Linda Wark  12. Address: 115th Avenue, Evart, MI 49631 (616) 734-5766  13. Surface location description  NE wo 1 NW wo 1 NE w Section 30 r. 17N a. 8W  County  County  County  15. Bottom hole location description it directional drift  Va of w Section T. A.  16. Township  Surface  a Localion:  330 ft. from (NVS) N. Line of quarter section. AND 983 ft. from (E/W) Line of quarter section.  Bot. Hole  b. Location:  Drilling  C. Unit:  330 ft. from (NVS) N. Line of quarter section.  AND 330 ft. from (E/W) Line of quarter section.  AND Drilling contracto:  Address:  T. D. Provins Drilling Co., Inc., 2111 Enterprise Dr., Mt. Pleasant, MI (517) 773-6946  Rotary  12. Intended depth  22. Is sour oil or gas expected?  (See Instructions, Item 6)	Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surf	43. DIUWODI CODUCI ILIETHII ROUMIMANT PUNA RISA 1/100 /2			nati 🖸	No ]				b946 	
Phone:	LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT—640 ACRES  2250 Enterprise Dr., Mt. Pleasant, MI 48858 (517) 773-3949  10. Losse or well name: (% b brief as possible)  Well number: Wark  1-30  11. Surface owner: John A. & Linda Wark  12. Address: 115th Avenue, Evart, MI 49631 (616) 734-5766  13. Surface location description NE w of NW v of NE w Section 30 r. 17N a, 8W  14. Township  Evart  Osceola  15. Bottom hole tocation description if directional drift Vs of vs Section r. A Section r. A  16. Township  Evart  Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surf	Secondary   Deepen   Revise   Recovery   Deepen   Revise   Recovery   Revise   Recovery   Revise   Recovery   Revise   Recovery   Recovery   Revise   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Recovery   Re		ating, testing, choke	manifold, etc. Sec	nati 🖸	No ]				b946	
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(616) 734-5766  1 30 r. 17N A. 8W  County  OSCEOTA  T. A.  County  Line of quarter section.  It. from (E/W) Line of drilling unit.  Telephone: Pleasant, MI (517) 773-6946  Four oil or gas expected?  (See Instructions, Item 6)	LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT—640 ACRES  2250 Enterprise Dr., Mt. Pleasant, MI 48858 (517) 773-3949  10. Losse or well name: (% b brief as possible)  Well number: Wark  1-30  11. Surface owner: John A. & Linda Wark  12. Address: 115th Avenue, Evart, MI 49631 (616) 734-5766  13. Surface location description NE w of NW v of NE w Section 30 r. 17N a, 8W  14. Township  Evart  Osceola  15. Bottom hole tocation description if directional drift Vs of vs Section r. A Section r. A  16. Township  Evart  Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surface Surf	Surface   Simple   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surface   Surfa	See Exhibits "A" and "B" att	ating, testing, choke tached here	manifold, etc. Sec	nati []	No   []	Yes (See			0940	
(616) 734-5766  1 30 r. 17N A. 8W  County  OSCEOTA  T. A.  County  Line of quarter section.  It. from (E/W) Line of drilling unit.  Telephone: Pleasant, MI (517) 773-6946  Four oil or gas expected?  (See Instructions, Item 6)	LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT - 640 ACRES  2250 Enterprise Dr., Mt. Pleasant, MI 48858 (517) 773-3949  10. Lease or well name: (be brief as possible) Wark  1-30  11. Surface owner: John A. & Linda Wark  12. Address: 115th Avenue, Evart, MI 49631 (616) 734-5766  13. Surface location description NE v. of NW v. of NE v. section 30 r. 17N a. 8W  14. Township Evart Osceola  16. Township County  17. LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF GUARTER SECTION AND DRILLING UNIT.  Surface Location: Surface Location: D. H. from (N/S) Line of quarter section. AND D. Line of drilling unit AND D. Line of drilling unit AND D. Line of drilling unit AND D. Line of drilling unit AND D. Line of drilling unit AND D. Line of drilling unit AND D. Line of drilling unit AND D. Line of drilling unit AND D. Line of drilling unit AND D. Line of drilling unit AND D. Line of drilling unit AND D. Line of drilling unit AND D. Line of guarter section. D. Provins Drilling Co., Inc., 2111 Enterprise Dr., Mt. Pleasant, MI (517) 773-6946  19. Kind of tools (Robay, cable, combination) D. Line of guarter section. D. Provins Drilling Co., Inc., 2111 Enterprise Dr., Mt. Pleasant, MI (517) 773-6946  22. Is sour oil or gas expected?  Rotary  23. Blowout control (Detail equipment type, size, trim, rating, testing, choke manifold, dc. See instructions, Item 7)  See Exhibits "A" and "B" attached hereto	So pro permits evist for this well?   No   Display   Store   Deepen   Application   Cancel and   No   Display   No   Display   Propried   Termind   No   Display   No   Display   Propried   Termind   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display   No   Display	See Exhibits "A" and "B" att	ating, testing, choke tached here	manifold, etc. Sec eto CASING, CEI	nati () e instructions, Item i	No   []	Yes (See	Instructions,			
(616) 734-5766  1 30 r. 17N R. 8W  County  OSCEOTA  T. R.  County  Line of quarter section.  It. from (E/W) Line of quarter section.  It. from (E/W) Line of drilling unit.  Telephone: Pleasant, MI (517) 773-6946  Dur oil or gas expected?  (See Instructions, Item 6)  LING PROGRAM  CEMENT MUD	COCATE WELL AND OUTLINE UNIT	Sop give permits evest for this well?   Sorgio permits evest for this well?   No   Direction   Social Provided   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direction   No   Direc	See Exhibits "A" and "B" att	ating, testing, choke tached here ED DRILLING,	manifold, etc. Sec eto CASING, CEI	nati [] e instructions, Item MENTING AND ING	No D	Yes (See	Instructions.	Item 6)	MUD	W.L.
(616) 734-5766  1 30 T. 17N R. 8W  County  OSCEOTA  T. R.  County  Line of quarter section.  It. from (E/W) Line of drilling unit.  Telephone:  Pleasant, MI (517) 773-6946  Depth Secks W.O.C.(frs.) W1. Vis. W.L.	COCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES   2250 Enterprise Dr., Mt. Pleasant, MI 48858 (517) 773-3949   10. Lease or well name: (he brief as possible)   Well number: Wark   1-30   11. Surface owner: John A. & Linda Wark   1-30   11. Surface owner: John A. & Linda Wark   1-30   11. Surface owner: John A. & Linda Wark   12. Address: 115th Avenue, Evart, MI 49631 (616) 734-5766   13. Surface location description NE is of NW is of NE is Section 30 7. 17N	Social and   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   Storage   S	See Exhibits "A" and "B" att  24. PROPOS  HOLE  Depth Geol. Form Bit Die.	ating, testing, choke tached here ED DRILLING,	manifold, etc. Sec eto CASING, CEI CAS WL/Ft. — Grad	mati e instructions, Item  MENTING AND ING e — Condition	No Depth	Yes (See	Instructions.	Item 6)	MUD	W.L.
(616) 734-5766  1 30 T. 17N A. 8W  County  OSCEOTA  T. A.  County  Line of quarter section.  It. from (E/W) Line of quarter section.  It. from (E/W) Line of drilling unit.  Telephone:  Pleasant, MI (517) 773-6946  Sour oil or gas expected?  (See Instructions, Item 6)  LING PROGRAM  CEMENT MUD  Depth Sacks W.O.C.(frs.) W1. Vis. W.L.  80	2250 Enterprise Dr., Mt. Pleasant, MI 48858 (517) 773-3949	No     No     No     No     No   No	See Exhibits "A" and "B" att  24. PROPOS  HOLE  Depth Geol. Form Bit Dia.  60-80 Drive	eting, testing, choke tached here to DRILLING,  O.D. Size  20 94	manifold, etc. Sec eto CASING, CEI CAS WL/Fr. — Grad 4.0# Condi	MENTING AND ING  - Condition UCTOY-NEW	SEALING PI	Yes (See	ENT W.O.C.(Ivs.)	Wt.	MUD Vis.	
(616) 734-5766  1 30 T. 17N A. 8W  County  OSCEOTA  T. A.  County  Line of quarter section.  It. from (E/W) Line of drilling unit.  Telephone:  Pleasant, MI (517) 773-6946  Dur oil or gas expected?  (See Instructions, Item 6)  LING PROGRAM  CEMENT MUD  Depth Sacks W.O.C.(frs.) W1. Vis. W.L.  80	2250 Enterprise Dr., Mt. Pleasant, MI 48858 (517) 773-3949	No   Description   Description   Process   Description   Process   Description   Process   Description   Process   Description   Process   Description   Process   Description   Process   Description   Process   Description   Process   Description   Process   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   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Description   Description   Description   Description   Description   Description   Descrip	See Exhibits "A" and "B" attempts   PROPOS	enting, testing, choke tached here tached here to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to 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ENT W.O.C.(Ive.)	w19.5	MUD Vis.	25
(616) 734-5766  1 30 r. 17N	2250 Enterprise Dr., Mt. Pleasant, MI 48858 (517) 773-3949	Secondary   Deepon   Revise   Dispose   No price   Paccounty   Deepon   Revise   Paccounty   Deepon   Replication   Trainsfer   No   No   No   No   No   No   No   N	See Exhibits "A" and "B" attempts   PROPOS	enting, testing, choke tached here to brilling, testing, choke to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to be compared to	manifold, etc. Sec eto CASING, CEI CAS WL/Fr. — Grad 4.0# Condu 8.0# H-40 7.0# L-80	MENTING AND ING  - Condition  UCTOY-NEW  - New  - New	SEALING PI Depth 60-80	Yes (See ROGRAM CEM Sacks Cir.	ENT W.O.C.(Ive.)	w19.5	MUD Vis.	25
(616) 734-5766  1 30 r. 17N a. 8W  County  Osceola  T. A.  County  Line of quarter section.  It. from (E/W) Line of drilling unit.  Telephone:  Pleasant, MI (517) 773-6946  Four oil or gas expected?  (See Instructions, Item 6)  LING PROGRAM  CEMENT MUD  Depth Sacks W.O.C.(hrs.) W1. Vis. W.L.  -80	2250 Enterprise Dr., Mt. Pleasant, MI 48858 (517) 773-3949	Secondary   Deepon   Refuse   Propriet   Storage   Recovery   Deepon   Refuse   Canalter   No   No   No   No   No   No   No   N	See Exhibits "A" and "B" attempts   A	enting, testing, choke tached here tached here to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a co	casing, celes  cas  wt/fr.—Grad  4.0# Condu  8.0# H-40  7.0# L-80  and Tuboso	mati e instructions, Item  MENTING AND ING e — Condition Uctor-New  -New  -New Coped	SEALING PI  Depth  60-80  900	ROGRAM CEM Sacks Cir. 200	ENT W.O.C.(IVE) 18 18	w1 9.5	MUD Vis.  55 33	25 10
(616) 734-5766  1 30 r. 17N a. 8W  County  Osceola  T. A.  County  Line of quarter section.  It. from (E/W) Line of drilling unit.  Telephone:  Pleasant, MI (517) 773-6946  Four oil or gas expected?  (See Instructions, Item 6)  LING PROGRAM  CEMENT MUD  Depth Sacks W.O.C.(hrs.) W1. Vis. W.L.  -80	2250 Enterprise Dr., Mt. Pleasant, MI 48858 (517) 773-3949	Secondary   Deepon   Refuse   Propriet   Storage   Recovery   Deepon   Refuse   Canalter   No   No   No   No   No   No   No   N	See Exhibits "A" and "B" attempts   A	enting, testing, choke tached here tached here to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a co	casing, celes  cas  wt/fr.—Grad  4.0# Condu  8.0# H-40  7.0# L-80  and Tuboso	mati e instructions, Item  MENTING AND ING e — Condition Uctor-New  -New  -New Coped	SEALING PI  Depth  60-80  900	ROGRAM CEM Sacks Cir. 200	ENT W.O.C.(IVE) 18 18	w1 9.5	MUD Vis.  55 33	25 10
(616) 734-5766  1 30 r. 17N a. 8W  County  Osceola  T. A.  County  Line of quarter section.  It. from (E/W) Line of drilling unit.  Telephone:  Pleasant, MI (517) 773-6946  Four oil or gas expected?  (See Instructions, Item 6)  LING PROGRAM  CEMENT MUD  Depth Sacks W.O.C.(hrs.) W1. Vis. W.L.  -80	2250 Enterprise Dr., Mt. Pleasant, MI 48858 (517) 773-3949	Secondary   Deepon   Refuse   Propriet   Storage   Recovery   Deepon   Refuse   Canalter   No   No   No   No   No   No   No   N	See Exhibits "A" and "B" attempts   A	enting, testing, choke tached here tached here to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a compared to be a co	casing, celes  cas  wt/fr.—Grad  4.0# Condu  8.0# H-40  7.0# L-80  and Tuboso	mati e instructions, Item  MENTING AND ING e — Condition Uctor-New  -New  -New Coped	SEALING PI  Depth  60-80  900	ROGRAM CEM Sacks Cir. 200	ENT W.O.C.(IVE) 18 18	w1 9.5	MUD Vis.  55 33	25 10
(616) 734-5766  1 30 r. 17N a. 8W  County  Osceola  T. A.  County  Line of quarter section.  It. from (E/W) Line of drilling unit.  Telephone:  Pleasant, MI (517) 773-6946  Four oil or gas expected?  (See Instructions, Item 6)  LING PROGRAM  CEMENT MUD  Depth Sacks W.O.C.(hrs.) W1. Vis. W.L.  -80	2250 Enterprise Dr., Mt. Pleasant, MI 48858 (517) 773-3949	Secondary   Companies   Secondary   Companies   Recrease   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Compa	See Exhibits "A" and "B" attempts   HOLE	ating, testing, choke cached here ED DRILLING, O.D. Size 20 94 13 3/8 48 9 5/8 47	casing, celes  cas  wt/fr.—Grad  4.0# Condu  8.0# H-40  7.0# L-80  and Tuboso	mati e instructions, Item  MENTING AND ING e — Condition Uctor-New  -New  -New Coped	SEALING PI  Depth  60-80  900	ROGRAM CEM Sacks Cir. 200	ENT W.O.C.(IVE) 18 18	w1 9.5	MUD Vis.  55 33	25 10
(616) 734-5766  1 30 r. 17N a. 8W  County  Osceola  T. A.  County  Line of quarter section.  It. from (E/W) Line of drilling unit.  Telephone:  Pleasant, MI (517) 773-6946  Four oil or gas expected?  (See Instructions, Item 6)  LING PROGRAM  CEMENT MUD  Depth Sacks W.O.C.(hrs.) W1. Vis. W.L.  -80	County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   County   C	Secondary   Companies   Secondary   Companies   Secondary   Companies   Secondary   Companies   Secondary   Companies   Secondary   Companies   Secondary   Companies   Secondary   Companies   Secondary   Companies   Secondary   Companies   Secondary   Companies   Secondary   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Companies   Comp	See Exhibits "A" and "B" attempts   A"   A"   A"   A"   A"   A"   A"   A	enting, testing, choke tached here tached here to be be be be be be be be be be be be be	manifold, etc. Sec eto CASING, CEI CASING, CEI WL/FR.—Grad 4.0# Condu 8.0# H-40 7.0# L-80 and Tuboso 7.0# N-80	MENTING AND ING  - Condition UCTOR-New -New -New Coped -New	SEALING PI  Depth  60-80  900  5500  0-8600	ROGRAM CEM Sacks Cir. 200	ENT W.O.C.(IVE) 18 18	w1 9.5	MUD Vis.  55 33	25 10
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(616) 734-5766  1 30 r. 17N s. 8W  County  OSCEOTA  T. S.  County  Line of quarter section.  It. from (E/W) Line of quarter section.  It. from (E/W) Line of drilling unit.  Telephone:  Pleasant, MI (517) 773-6946  Four oil or gas expected?  See Instructions, Item 6)  LING PROGRAM  CEMENT MUD  Depth Sacks W.O.C.(IVS) W1. VIs. W.L.  -80  O Cir. 18 9.5 55 25  200 18 10.5 33 10  00  3600 As nec 72 10.5 33 10	2250 Enterprise Dr., Mt. Pleasant, MI 48858 (517) 773-3949	Source   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despote   Despo	See Exhibits "A" and "B" attempted	enting, testing, choke tached here tached here to DRILLING,  O.D. Size  20 13 3/8 48 9 5/8 47 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	manifold, etc. Sec eto CASING, CEI CASING, CEI CASING, CEI WL/Ft. — Grad 4.0# Condu 8.0# H-40 7.0# L-80 and Tuboso 7.0# N-80	MENTING AND ING  - Condition UCTOR-NEW - NEW - NEW COPED - NEW  THE MENTING AND ING  - Condition UCTOR-NEW - NEW - NEW  COPED - NEW  126. Name of application	No	Yes (See ROGRAM CEM Sacks Cir. 200 As nec.	ENT W.O.C.(hrs.) 18 18	wi 9.5 10.5	MUD Vis 55 33	25 10
(616) 734-5766  1 30 r. 17N R. 8W  County  OSCEOTA  T. R.  County  Line of quarter section.  It. from (E/W) Line of drilling unit.  Telephone:  Pleasant, MI (517) 773-6946  Pur oil or gas expected?  (See Instructions, Item 6)  LING PROGRAM  CEMENT MUD  Pepth Sacks W.O.C.(Vrs.) WI. Vis. W.L.  -80  O Cir. 18 9.5 55 25  200 18 10.5 33 10  3600 As nec 72 10.5 33 10	COCATE WELL AND OUTLINE UNIT ON SECTION PLAT—840 ACRES   1250 Enterprise Dr., Mt. Pleasant, MI 48958 (517) 773-3949	So you permake years for July warry   Despoin   Review of Despoin   Review of Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Review   Despoin   Despoin   Review   Despoin   Despoin   Review   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Despoin   Desp	See Exhibits "A" and "B" attempts   HOLE	enting, testing, choke tached here tached here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a	manifold, etc. Sec eto CASING, CEI CAS WL/FL - Grad 4.0# Condu 8.0# H-40 7.0# L-80 and Tuboso 7.0# N-80	MENTING AND ING  - Condition UCTOY-NEW -NEW -NEW COPED -NEW  105. Name of applications	SEALING PI  Depth  60-80  900  5500  0-8600  58  ant's agent: (Prin	Yes (See ROGRAM CEM Sacks Cir. 200 As nec.	ENT W.O.C.(hrs.) 18 18	wi.  9.5 10.5 17) 7	MUD Vis 55 33 33  Phone: 73-39	25 10
(616) 734-5766  1 30 r. 17N R. 8W  County  OSCEOTA  T. R. County  Line of quarter section.  It. from (E/W) Line of drilling unit.  Telephone:  Pleasant, MI (517) 773-6946  Pleasant, MI (517) 773-6946  Press (See Instructions, Item 6)  LING PROGRAM  CEMENT   MUD   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   William   Willia	COCATE WELL AND OUTLINE UNIT   2250 Enterprise Dr., Mt. Pleasant, MI 48358 (517) 773-3949   1	Content and   Stronger   Stronger   Stronger   Stronger   Stronger   Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and Congenies and C	See Exhibits "A" and "B" attempts   HOLE	enting, testing, choke tached here tached here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a considered here to be a	manifold, etc. Sec eto CASING, CEI CAS WL/FL - Grad 4.0# Condu 8.0# H-40 7.0# L-80 and Tuboso 7.0# N-80	MENTING AND ING	SEALING PI  Depth 60-80 900 5500 0-8600  58 ant's agent: (Prince Pentice Pint)	Yes (See ROGRAM CEM Sacks Cir. 200 As nec.	ENT W.O.C.(hrs.) 18 18	wi. 9.5 10.5 17) 7	MUD Vis 55 33 33 Phone: 73-39 Date:	25 10
(616) 734-5766  1 30 r. 17N s. 8W  County  Osceola  1 T. s.  County  Line of quarter section.  It. from (E/W) Line of drilling unit.  Telephone:  Pleasant, MI (517) 773-6946  Pur oif or gas expected?  See Instructions, Item 6)  LING PROGRAM  CEMENT   MUD  Depth   Sacks   W.O.C.(hrs.)   W1.   V1s.   W.L.  -80	COCATE WELL AND OUTLINE UNIT   ON SECTION PLAT	Social and   Bring   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short   Short	See Exhibits "A" and "B" attempts   HOLE	ating, testing, choke tached here tached here to be a considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered by the considered b	manifold, etc. Sec eto CASING, CEI CASING, CEI CASING, CEI CASING, CEI 4.0# Condu 8.0# H-40 7.0# L-80 and Tuboso 7.0# N-80 t. Pleasai	MENTING AND ING	SEALING PI  Depth  60-80  900  5500  0-8600  58  ant's agent: (Prin  Junker  Junker	Yes (See ROGRAM CEM Sacks Cir. 200 As nec.	ENT W.O.C.(hrs.)	wi 9.5 10.5	MUD Vis 55 33 33 Phone: 73-39 Date:	25 10
(616) 734-5766  1 30 r. 17N s. 8W  County  OSCEOTA  1 T. s.  County  Line of quarter section.  It. from (E/W)	COCATE WELL AND OUTLINE UNIT  ON SECTION PLAT — 640 AGRES  10 Leave or any or name (no bod' as possible)  WAY'R  1. Surface counts: 1. Surface counts: 1. Surface counts: 1. Surface counts: 1. Surface counts: 1. Surface counts: 1. Surface counts: 1. Surface counts: 1. Surface counts: 1. Surface counts: 1. Surface counts: 1. Surface counts: 1. Surface counts: 1. Surface counts: 1. Surface counts: 1. Surface counts: 1. Surface counts: 1. Surface counts: 1. Surface counts: 1. Surface counts: 1. Surface counts: 1. Surface counts: 1. Surface counts: 1. Surface counts: 1. Surface counts: 1. Surface counts: 1. Surface counts: 1. Surface counts: 1. Surface counts: 1. Surface counts: 1. Surface counts: 1. Surface counts: 1. Surface counts: 1. Surface counts: 1. Surface counts: 1. Surface counts: 1. Surface counts: 1. Surface counts: 1. Surface counts: 1. Surface counts: 1. 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Pleasai	MENTING AND ING	SEALING PI  Depth 60-80 900  5500 0-8600  58  ant's agent: (Print) Junker Pent: For G	ROGRAM CEM Sacks Cir. 200 As nec.	Instructions.  ENT  W.O.C.(IVE)  18 18 72 (5)	wn. 9.5 10.5 10.5 27) 7 8- 9 Only	MUD Vis.  55 33 33 Phone: 73-39 Date: 2-82	25 10
Well number:		Oil and or Gas Disposal Storage Recovery Deepen Application Transfer No Di Yes \$100.00  6. Do prior permits exist for this well?  No Di Yes Drilled Termin'd WILLMET. INC.	Mineral Well Act #10029  LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES	2250 Ent  10. Lease or well  Wark  11. Surface owne  John A.  12. Address:  115th Av  13. Surface locati  NE 14.  14. Township  Evart  15. Bottom hole	terprise [ I name: (be brief a  ar:  & Linda V  venue, Evalon description 4 of NW	or., Mt. Plas possible)  Vark  art, MI 496  va of NE vas	531 Section 30	(616) r. 17N	Well numb 1-30  Phone: 734-5  County	766 <sub>R.</sub> 8W	3-394	9
Phone:		Oil and Or Gas Disposal Storage Recovery Deepen Application Transfer No M Yes \$100.00		1		20 th <b>o,</b> 2nd 20m202,	,					
Phone:	No. D. Yes   Drilled   Termin'd	Oil and Bring Hydrocarbon Secondary						ınsier	<u> </u>	LAI Tes	\$ 132 <u>0</u>	<u> </u>
	6. Do prior permits exist for this well?  8. Applicant: (name each "owner" as they are bonded)  7. No. 1. Described 1. Termin'd	A Application to: (no fee required)	Oil and Bring Hydrocs	urbon Secon	ndary )	Revise	Cai	ncel and I			<b>\$</b> 100	-00
Cancel and No Dayes \$100.00	Oil and Brine Hydrocarbon Secondary Deepen Application Transfer No No No No No No No No No No No No No	L3-1391931				ation to: (no fee rec			5 Fee enclos	ad-		
Cancel and Transfer 5. Fee enclosed:  No D Yes \$100.00	3. Application for permit to drill for:  Oil and Or Gas Disposal Storage Recovery Deepen Deepen Deepen Transfer  6. Do prior permits exist for this well?  8. Application to: (no fee required)  Revise Cancel and Transfer  No Deepen Deepen Deepen Transfer  8. Application to: (no fee required)  No Deepen Deepen Deepen Transfer  No Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen Deepen D		SEE INSTRUCTIONS				2. 🎾 Fed. E	Employer Ide	int. No.	i Soc. S	ecurity f	io.
25-1391931  Cancel and Transfer  5. Fee enclosed:  No D Yes \$100.00	SEE INSTRUCTIONS ON REVERSE SIDE  25-1391931  3. Application for permit to drill for:     Oil and	2. XD Fed, Employer Ident. No. D Soc. Security No.										

3. Blue - District review

6. Green - Applicant file (w/permit)

JAN 26 1983

## STATE OF MICHIGAN

SUPERVISOR OF WELLS

WELL REWORK RECORD

FILE IN DUPLICATE WITHIN 30 DAYS AFTER COMPLETION OF REWORK OR DEEPENING (Replaces GS 38)

PERMIT NUMBER 35977	DEEPENING PERMIT NUMBER	FIELD NAME Wildcat					
NAME AND ADDRESS OF WELL Willmet, Inc., 22	LOWNER 50 Enterprise Drive, Mt. P	leasant, MI 48858					
LEASE OR FARM NAME Wark			WELL NUMBER 1-30				
WELL LOCATION NE NW NE	SECTION 30 T. 171	TOWNSHIP N R. 8W Evart	COUNTY Osceola				
WELL COMPLETED FOR (Oil, C Injection, etc.) Dry	Gas, Gas Storage, Brine Disposal, Water Hole	TOTAL DEPTH AFTER REWORK 4750	MECHANICAL LOGS RUN NO ADDITIONAL LOGS				
WELL COMPLETED IN (Name F Dry Hole in Sour	lock Formation and Zone of Completion) Zone	DATE REWORK COMMENCED 9-17-82	DATE REWORK COMPLETED 9~19-82				
NAME AND ADDRESS OF CON T. D. Provins, 21	TRACTOR 13 Enterprise Drive, Mt. P	leasant, MI 48858					

Casir	ا	Ce	ment	Perfora	rtions	Acid or Fracture	Perforations
Size	Depth	Sacks	Туре	From	To	Treatment Record	If plugged, how?
611	491						
3 3/8"	8301	860	200 C1 A-	660 POZ			
9 5/8"	5453'	335	CLA				
	T		}	1			

	WELL CASING RECORD - AFTER REWORK (Indicate additions and changes only)												
Car	ing	Ce	ment	Perfo	rations	Acid or Fracture	Perforations						
Size	Depth	Sacks	Туре	From	To	Treatment Record	If plugged, how?						
9 5/8"	5453	335	4x/ft	4455	4457	500 gal. 20% HCL							
			- 11	4560	4562								
			1		1								
					<u> </u>								
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DESCRIBE REWORK OPERATIONS IN DETAIL

Run in and circulated cement from TD to 4750, Set bridge plug at approximately 4750. Perforated from 4455-57 and 4560-62, swabbed back 50 bbls load water and 30 bbls. formation water. Ran in and set bridge plug at 4650 and circulated cement to surface (1380 sx).

#### GEOLOGICAL FORMATION RECORD OF DEEPENING

FROM	то	FORMATION (type, color, hardness)			FROM	ТО	FORMA	TION (type, colo	r, hardness
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	DAILV P	RODUCTION	TEST RECORE	2	DAILY INJE	ECTION TEST	T RECORD I	F INJECTION V	VELL (OR BDW)
	DAILITI	1000011014	TEST RECORE						1222 (011 3011)
	Barı	reis	Pres	ssure	_	Barrels	Pr	essure Specific Grav	
Date	Oil	Water	Tubing	Casing	Date	of Water	Beginning	Ending	of Water
9-19-82	0	30 bbls.							
2 17 02		20 0010.		<del></del>				<del></del>	+
			1		1	1 :	ſ	i	1

SIGNATURE	(Well	Oyy¶her⊨	or Authorized	Represen	Mative)
	-			) <i> </i>	,
. /		// // //	<b>√</b> <		7

ADDRESS (1f different than well owner)

1425 S. Mission

Mt. Pleasant, MI 48858

DATE (Month, Day, Year)

1-20-83

NOTE: IF GAS WELL, RECORD FLOW TEST UNDER "DAILY PRODUCTION TEST RECORD"

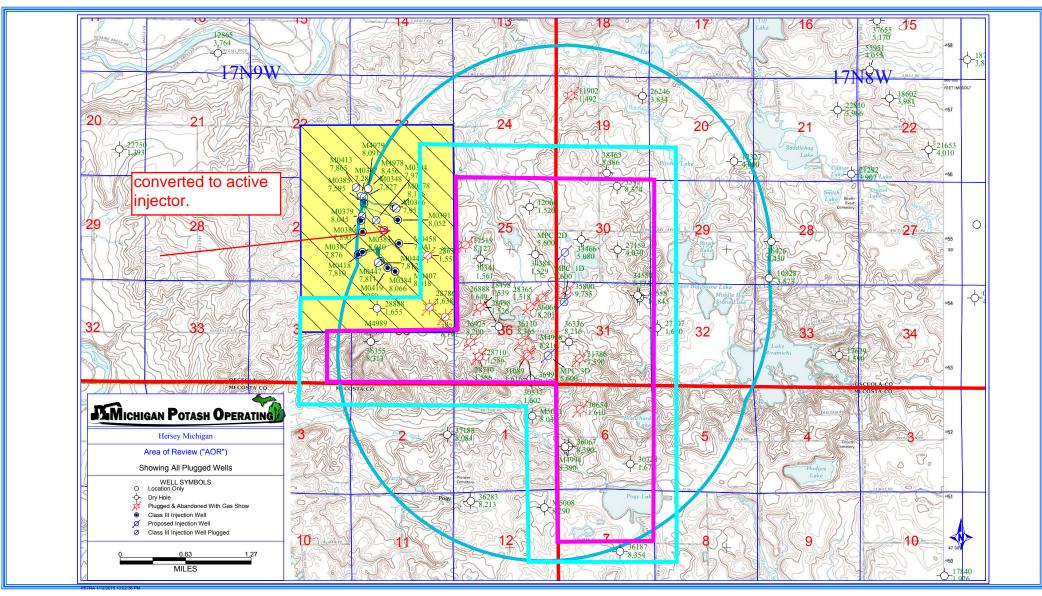


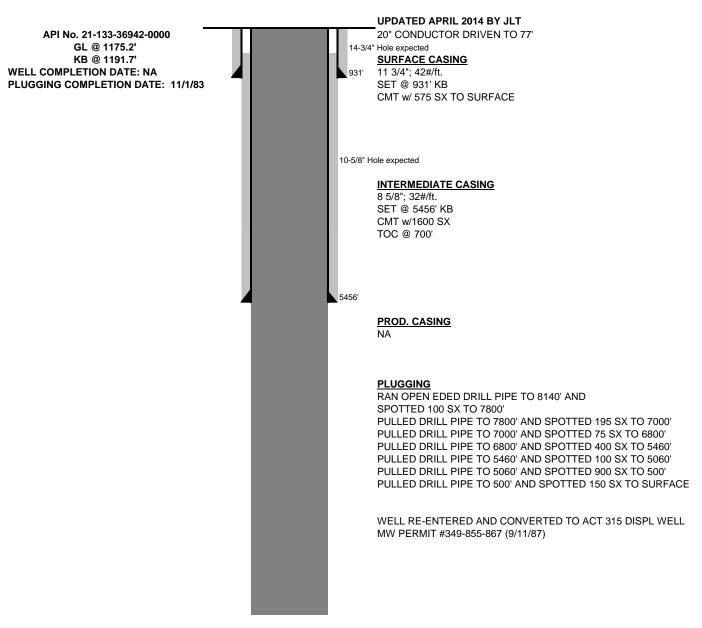
Figure B4. Map showing all plugged wells, shallow (that do not penetrate any confining horizon) or deep (that penetrate confining horzion) within the area of review. Total Depths are listed. There are several shallow Michigan Stray wells that do not penetrate the injection or confining horizon.



#### **WOODWARD 1-26**

#### NW NE SW Sec 26 T17N R9W OSCEOLA COUNTY, MI

#### **CURRENT WELLBORE DIAGRAM**



TD @ 8135' KB

#### **WOODWARD 1-26 WELL HISTORY**

DATE	DESCRIPTION
10/11/1983	SPUD.
10/31/1983	DRILLING COMPLETED. FORMATION AT TD CABOT HEAD.
	20" CONDUCTOR SET AT 77'
	11 3/4" SET AT 931'; 575 SX
	8 5/8" SET AT 5456'; 1600 SX
10/31/1983	PLUGGING START DATE
	RAN OPEN EDED DRILL PIPE TO 8140' AND
	SPOTTED 100 SX TO 7800'
	PULLED DRILL PIPE TO 7800' AND SPOTTED 195 SX TO 7000'
	PULLED DRILL PIPE TO 7000' AND SPOTTED 75 SX TO 6800'
	PULLED DRILL PIPE TO 6800' AND SPOTTED 400 SX TO 5460'
	PULLED DRILL PIPE TO 5460' AND SPOTTED 100 SX TO 5060'
	PULLED DRILL PIPE TO 5060' AND SPOTTED 900 SX TO 500'
	PULLED DRILL PIPE TO 500' AND SPOTTED 150 SX TO SURFACE
11/1/1983	PLUGGING COMPLETED
9/11/1987	WELL WAS RE-ENTERED AND CONVERTED TO AN ACT 315 DISPL. WELL MW PERMIT #349-855-867

Und	der Authority	of A	Act 61	P.A. of 1	939,	As Amen	ded		#	Box 3	10028, L	ansing	g, A	Aichiga	n 4890	19
1.	SEE INS	TRUC	CTIONS	S ON REV	ERSE		3	<del>//</del> /	2	Fed. E	mployer I	dent. No	5.) [	□ Soc.	Securily	No.
3. Application for perm Oil and Or Gas	Brine Disposal		Hydroi		Second Recove	farv	Deepen 2	. Revise	A.	Car Trai	ncel and	5. Fee			s <b>s</b> 1	00.00
6. Do prior permits exi	st for this well?			8. Applicant		e each "owne						J	-			
	Drilled	. لـا	Termin'd	PPG Ni	1 &	Gas Co	Inc	1 v	ا . ' ۱	Ma.	1211	s.				
7. List each permit nur	mber					or only if mor				uu	, (3)	Phor	ue.			
LOCATE WE	LL AND OUT	LINE	LINIT													
	N PLAT - 64			2258 E	nte	rprise	Drive,	Mt.	P1eas	sant,	MI 48	3858	(5	517)	773-3	949
	N			10. Lease o	r well r	name: (be brie	t as possible	)					num			
		<u> </u>	<u> </u>	Woodwa									-26			
		1	}	1		Brigid	Moodwa	rd								
X	+	· <del> -</del>		12. Address		51 1910	1000					Pho	ne:	·		
		ال مر أم	¦ <b>-</b>	1661 W	. Vá	ance Rd						(6	16	832	<b>-4970</b>	
W			E	I		n description				^_		711	•	01.7		
		1 1		NW		of NE	1/4 of S	W 1/4	Section	26	T. 17	Cour		R.9W		
5		7 - 1		14. Townshi	•								•	ola		
7						cation descrip	tion if directi	onal drill	(See ins	structions,	item 5)				<del></del>	
	+-+-	<del>-</del>			74	ol	¼ of	<i>y</i> <sub>4</sub>	Section		۲.			A.		
	للللل			16. Townshi	P							Cour	nly			
17. LOCATE WELL IN	S TWO DIRECTION	S FROM	A NEARES	ST LINES OF D	UARTE	R SECTION A	ND DRILLING	UNIT. (	See instr	uctions, i	lems 4 & 5			~		
				_										Can de		•
a. Location: 460	ft. tro	om (N/S	š)	14	. Line o	i quarter sect	ion. AND		U.Z.	II. NO	m (E/W)		<u> </u>	Line of qu	iarter sect	ion.
Bot. Hole b. Location:	ft. fre	om (N/S	i)		Line o	of quarter sec	ion AND			ft. from	m (E/W)		l	Line of qu	arter secti	ion.
Orilling 0.40				c				6	67			E				
c. Unit: 842		om (N/S	S)	<u> </u>	Li	ne of drilling			07	ft. fro	m (E/W)				f drilling (	unit.
18. Drilling contractor. T. D. Provi		Rox	642	. M+. P1	6856	Addres 3nt. MT						(5		ерћоле: <b>77</b> 3.	-6946	
19. Kind of tools (Rot			_			21. Intended		22	2. Is sour	oil or ga	as expected	<u></u>				
Rotary				8,600'		Cincin	natian	X	ON K	[] v	res (Se	e Instruct	tions.	item 6)		
23. Blowout control (C	Detail equipment t	ype, siz	e, trim, r	ating, testing, c	hoke m	anifold, etc. S	ee instruction	ns, Item	7)			;				
See Exhibit	s "A" and	"B"	' att	ached he	reto	).										
24.				ED DRILLIN			MENTING	AND	SEALI	NG PR	OGRAM					
	HOLE						SING					MENT			MUD	
Depth	Geol. Form	Bn	Dia.	O.D. Size	W	/1/F1. — Gra	de — Condi	tion	De	pth	Sacks	W.O.C.O	YS.)	Wt.	VIs.	W.L.
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857'	Drift		3/4"	11 3/4"	<del></del>		New		<del></del>	<del></del>	500			face	ļ	<del>  -</del>
	<u>lslands</u>	10_	5/8"	8 5/8" 5 1/2"		# N-80			b. 55		250			face	600'	insi
.8600' Cinci	nnatian		7/8"	5 1/2"	1/7	N-80	New	,Ins	υ. ο <del>ι</del>	500'	350		8 ah	rox. /8"	nter	
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PPG 011 & Gi	•		Add		torr	rico D	civo M	+ D	loaca	ant l	MT ARR	 158				
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Date Issued		Perm			Numi	Def	26 Dona	nd"p	, Silli	ith.	- 010			1	Phoлe:	2040
3-15-8=	3 2 10	DRILL				942	27. Signatu			ingine	/ (			(517)	0ate:	-3949
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FOR C	ASHIER'S USE			T WAITE IN	THIS	SPACE	1 Va		1	For Ge	ological	Survay			<del></del>	
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#### STATE OF MICHIGAN DEPARTMENT OF GEOLOGIC!

PERMIT NUMBER	36942
FIELD NAME	Hersey

700

#### PERMIT TO PL

F NATURAL RESOURCES AL SURVEY DIVISION	TENMIN NOMBER	36942
LUG AND ABANDON	FIELD NAME	Hersey

Others — On r	edvest	( L. ( ( ( ) )		EUG AND ADAM	0011		
NAME AND ADD	RESS OF PERMITTEE						
ĺ	PPG AND	MILLER BROS					
LEASE NAME A				ner 1	6 1983		
	Woodward	1-26		DLO .			
LOCATION (VA VA	1 1/4 or other)		SECTION		TOWNSHI	P	COUNTY
	NW NE SW		26	1 17N 9W	Her	CRAY	ORGANIA
TYPE OF WELL	(Oil, Gas, Dry Hole, etc.)	DATE COMPLETED	)	DATE PLUGGING WILL STARY	PLUGGING PERMIT F	EQUESTED BY	& DATE
	Dry	10/	30/83	10/31/83	W. Mas	sterson	10/30/83
LAST PRODUCT	ON				PLUGGING 10 BE DO	NE BY	~ VI-JVI VJ
BOPD	6WP0	MCFGPD		DATE		~ 2.4	
PERMIT MAILED	TO		COP	ES MAILED TO			
							_
			CASING AN	D CEMENTING RECORD			
HOLE DIA.	CASING DIA. & WT./FT.	DEPTHS SET		CEMENT QUANTITY, TYPE, ADDIT	rives	CMT. TOP.	PERFORATIONS
	20*	77					
	113/4"	931*	575	SX		surf	

GEOLOGIC DATA; GAS AND OIL SHOWS; DRILLING AND COMPLETION DATA:

SX

CONFIDENTIAL

1600

#### PLUGGING REQUIREMENTS!

Plugging requirements outlined are to be executed in accordance with the provisions of Act 61, P.A. 1939, as amended, and rules and orders adopted thereunder.

্

PI AS PER MINERAL WELLS: 100 sx cmt. at 8140; 195 sx cmt at 7800°; 75 sx at 7000°; 400 sx at 6800°; 100 sx cmt 5460°; 900 sx at 5060°; 150 sx at 500°.

\*NOTE: BONDS CANNOT BE RELEASED UNTIL A PLUGGING IS COMPLETED, CELLAR RAT HOLE AND PITS FILLED, WELL SITE RESTORED AND RECORDS FILED, WATER WELLS MUST BE PLUGGED ACCORDING TO RULE 186 OF ACT 294 P.A. 1965, "GROUND WATER QUALITY CONTROL". It is further made a requirement of this permit that the applicant give notice to the public utilities in accordance with Act 53, P.A. 1974 C.L. 460.701 to 450.718 and comply with each of the renurrements of the act.

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AUTHORIZED BY (signature)	OFFICE		DATE
miller 1. Mins		Cadillac D#6	12/9/83

STATE OF MICHIGAN
DEPARTMENT OF NATURAL RESOURCES

NOA	<b>3</b> 9	1983	PERMIT NUMBER
ACT			36942

LC	G OF	OH	L, GAS, DI	SPOSAL	OR STOR	AGE WELL	_ (ACT 61	1)			942					
						Well Comple			DEEPENI	NG P	PERM	IT NU	MBER			
NAME(S) &	ADDRE	SS C	OF OWNER(S	S) SHOWN (	ON PERMIT							RACT	OR(S)			
PPG Oil & Gas Co.,				•			NAME & ADDRESS OF DRILLING CONTRACTOR(S) Bigard Drilling Company									
2258 Enterprise Dr Mt. Pleasant, MI 4						1	S. Miss Pleasant		ឧឧร	Ω						
							PIL. I	Teasant	, MI 4							
LEASE NAM	ie(s) & dwar			SHOWN OF	UPERMIT								NALI ON		11666	D
SURFACE L				SECTION		Townshi	P	RANGE			<b>↓</b>		PNAN			
	NE SI			l	26	17	N		9W			He	rsey	,		
FOOTAGES							ast/West)				COU	NTY	NAME			
			orth L		- ·			ine of quarte	er section		1		ceo1			
SUBSURFA	<u>CE</u> LOC	ATI	ON	SECTION		TOWNSHI	Р	RANGE			ITOW	NSHI	PNAM	16		
FOOTAGES		(No	rth/South)	J		(E	ast/West)				cou	NTY	NAME			
L						_ Ft. from_			er section							
DRILLIN				h	EPTH OF WE	8140_	TYPE WE	ıı Ory Hole			{		~			
DRILLIN	0-11-			1	ON AT T.D.		1	ROTAR	Y TOOLS		K.B.		ELEVA	R.F.		
IAI	0-31		,		t Head		1	0 ro_				1191	.7		1190	1.3
E WELL CO	MPLE	TED		1	NG FORMA	TION(S)	FT. DRLC	CABLE	rools		R.T.			Grd.		
				None	:		From	To _							1175	
	CASIN	G, CA	ASING LINE	RS AND CE	MENTING				PER	FOR	ATIO	NS				
SIZE	V	HER	ESET	CEM	ENT	ft. Pulled		NUMBE	R			5000			OF	PEN
20"			77	D.F	•		DATE	HOLES	3 110				RATE		YES	NO
11 3/4			31		Sx		<b> </b>				None			<del> </del>		
8 5/8		545	56	1600	Sx	<del></del> -	<u></u>									<del></del>
·						<del></del>	<b> </b>									+-
	<b></b>					······································										
			PAY INTER	1		π	ALL OTHE	ROIL AND	GAS SHO	iws (						
FORMA None		-19	IL OR GAS	FROM	то	FORM	ATION	OIL ORGAS	DEPT	н {	Sam- otes	Odor	E OBS	Mud Line	Gas	
Ronc		_				Reed Ci	ty Dol	Gas	410	0	Dies			Little	X X	1-5
						Sour		Gas	465	0					X	
						A2 Carb	onate	Gas	699	5			X		X	
	STIMU	JLAT	ION BY ACI	D OR FRA	CTURING		WAT	ER FILL UP	(F.U.) O	R LO	ST CI	RCUL	ATIO	N (L.C	:.) (X)	
DATE	Inte	rval `	Freated	Material	s and amoun	t used	FORM	MATION	F.U. L.	c.	DEPT	Н		АМО	UNT	
	1	Vone	2				None									
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	MECHA	ANIC	AL LOGS, L					DRRECTION					·	JGGE		
Brand		(X)	LOGT			TERVALS	DEPTH	CORRECT'N				O	YES	NO	DE	РТН
Schlumberger Birdwell		X	LDT-CN Dual M		200-8 3100-8			<del> </del>	440			′4°	<b> </b>		-	
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									L————							
AM RESPO	NSIBLE					ON IS COM	PLETE AN					<u>-</u>		,	-A-	
DATE 11-18	-83		William			logist		SIGNATU			<	حص	13	ر سدد		

NOV 2 9 1983

LANSING HAS COPY

SEP 1 5 1987LL PLUGGING RECORD

(Submit in TRIPLICATE Within 30 Days After Plugging is Completed)

PERMIT NUMBER
36942 DEC 0 2 1983

Permits	&	<b>Bonding Unit</b>	
	•		

. Strinto & Doriding	Onk		1	
PPG 011 & Gas Co. Inc	S OF WELL OWNER  FY 1370(  2258 Enterprise Drive	. Mt. Pleasant	, MI 48858	
COMPLETE I FASE OR FARM NAME				WELL NUMBER
Woodward				1-26
WELL LOCATION			TOWNSHIP	COUNTY
NW 1/4 NE 1/4	SW% SEC. 26 T. 17N	R. 9W	Hersey	Osceola
TYPE OF WELL (Oil, Gas, Dry Hole, a	tc.)	TOTAL DEPTH	FORMATION	
Dry Hole		8135	Cabot Head	
DATE PLUGGING STARTED	DATE PLUGGING COMPLETED		TIVE(S) WHO ISSUED PERM	MIT OR WITNESSED
10-31-83	11-1-83	PLUGGING	Jack Snider	

	CASING	RECORD	
SIZE CASING	DEPTH SET	AMOUNT RECOVERED	SHOT OR RIPPED
20"	77		
11 3/4"	931		
8 5/8"	5456		
		<u> </u>	

BRIDGES OR PLUGS								
TYPE (Brush, Stone, Cement, Mechanical, etc.)	DEPTH PLACED	SACKS OF CEMENT AND ADDITIVES						
Cement	7800-8140	100 Sx						
Cement	7000-7800	195 Sx						
Cement	6800-7000	75 Sx						
Cement	5460-6800	400 Sx						
Cement	5060-5460	100 Sx						
Cement	500-5060	900 Sx						
Cement	0-500	150 Sx						

Were tools, tubing, casing, etc., lost or left in the hole before or during plugging?	YES	<b>⊠</b> NO	If yes, give details:
Did a Service Company pump mud, spot cement, or set bridge plugs?	XX YES	□NO	If yes, give name and address: Halliburton
Was the well plugged by a Company or Contractor other than Owner or Operator?	YES	ON KX	If yes, give name and address:
Representatives of Owner, Operator, Company, or plugging:	r Contractor v	vho witnessed	Willie Masterson
and spotted 195 sx to 7000', put drill pipe to 6800' and spotted	lled drill 400 sx to be to 5060	l pipe to 7 5410', pu	ex to 7800'. Pulled drill pipe to 7800' 000' and spotted 75 sx to 6800', pulled led drill pipe to 5460' and spotted ted 900 sx to 500, pulled drill pipe
			(USE REVERSE SIDE IF NEEDED)

"I state that I am authorized by said Owner or Operator to ma tion, and that the facts stated herein are true, correct and com		
NAME AND TITLE (Typed or Printed)		COMPANY NAME AND ADDRESS
William E. Booker, Geologist		STRICKLER GEOLOGICAL SERVICES, INC.
SIGNATURE 11	DATE (Month, Day, Year)	1425 S. Mission
Willin & Book	11-18-83	Mt. Pleasant, MI 48853

**OPERATORS USE** 

<u></u>			
Description of Detail (cont.) or Other Supplemental Data:			
			•
	~		<u> </u>
			``
	<del></del>		
	PARTMENT USE ONLY		
Supplemental Plugging Data and Site Conditions:			
Well was 're-entered and converted to	an het 315 dienl well	MW Dormit #340	9-855-867 M MOSS
well was te-entered and converted to	an Acc 315 dispi. well,	IM BELIILE #34:	7-033-007: 14 HOSS
		<del></del>	
FINAL INSPECTION	NS BY DEPARTMENT REPRESENTAT	TIVES	
			DATE
SIGNATURE	DIVISION		DATE
^ // -			
7. 1 1. 11 // Day 10	A FRAID SIGNAL CO.	.0.46.10	0/67
michael ! moss	GEOLOGICAL SU	RVIT	9/11/87